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ISSUE

6

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REVIEWED

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KAMASI
WASHINGTON:
STRAIGHT
OUTTA
COLTRANE

IN REVIEW

THE EXTRAORDINARY
BENCHMARK
AMPLIFIER
LOWER DISTORTION
THAN A WIRE!

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LP PLAYBACK
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GRAHAM, TECHDAS

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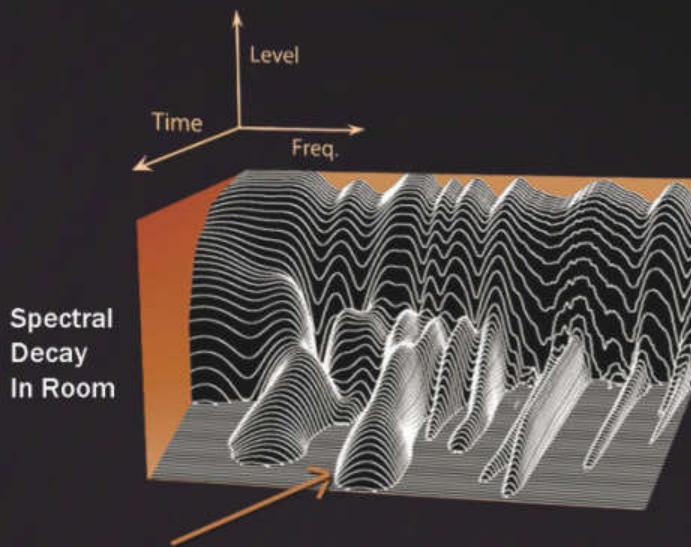
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NOVEMBER
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AS WE SEE IT

BY RICHARD LEHNERT

THIS ISSUE: Do audiophiles buy components to try to re-create that very first time?

Starting Over Again for the First Time

There is a difference between being deeply moved and being deeply delighted. Haydn engages my soul every time, but always the part of my soul that experiences delight—no dark brooding romantic passion, not even in the *Sturm und Drang* works. He sounds to me the ultimate Enlightenment composer. As I continue my third traversal of his 104-odd symphonies in the cycle recorded by Antal Doráti and the Philharmonia Hungarica, I consistently feel as I did when I stood in the rotunda of the Jefferson Memorial on a bright, brisk day in spring: musical thoughts wafting in and out like light and air moving through open colonnades of elegant form. Those architectures of marble and of sound strike me as ideal embodiments of and metaphors for the opened mind. Again, a purely personal response, but it is from Mozart's music that I often feel so oddly detached. In comparison to Haydn, Mozart's undeniable quality of awesome perfection seems self-regarding, even smug: a smooth, unmarred sphere, completely self-contained. It does not need me, and I find no way in to its cold, clear heart. I cannot gain a purchase on its polished surface, and so cannot move it, nor it move me.

But these days, I find that music almost never *moves* me in an emotionally deep or passionate way—not as it did in my teens or twenties or even my forties. For a long while, this ever-recovering romantic considered that a loss, but I no longer do. Now, regardless of the tone or ostensible “mood” of a piece I am listening to, my positive response, when I have one, is almost always one of delight: shallow, middling, deep, or profound, but always somewhere in the well of delight—even with so (apparently) anguished a work as the *Adagio* of Bruckner's Symphony 9. I just sit there and grin, marveling at how astonishing it is, that it makes the sense it does in the way it does—that it makes sense at all. I feel a fellow craftsman's joy in working his craft. I suspect that mine is a very simple soul.

In my freshman year in college, during my single semester as a Music History major in the fall of 1968, I often sat in my dorm room, listening through headphones to Mahler's Symphony 9 (Georg Solti's first recording, with the London Symphony), sometimes with score in hand. Once, as I listened to the final movement, I read D.T. Suzuki's *An Introduction to Zen Buddhism*, and realized that the music I was hearing embodied the state of mind Suzuki wrote of: awakenedness, *satori*, enlightenment, call it what you will. More than an intellectual realization, it was a genuine spiritual opening that I have never forgotten. A hole in reality seemed to have opened around me, and I fell into a vast, eternal now in which everything was perfect, precisely as it was, even as it eternally became something else. Others will have had similar experiences with other music, books, drugs, moments, but this was mine.

It's one thing to have such a singular breakthrough experience, as I did at 17 with Suzuki and Mahler. It's another to want to repeat that experience over and over. It's actually not

possible. It's like trying to open an already opened door, a doorway passed through long ago. Whatever it was that was broken through that first time can be broken through only once, and perhaps only at a certain time in life. After that, it can never again be as wholly new and unprecedented, even shocking, as it was that first time—and almost certainly it won't be triggered by what triggered it the first time.

Now, half a century later, when I listen again to Mahler's Ninth, after having heard it so many times, I come to it with ears and a sensibility of soul that have, to some degree, already been shaped or molded by Mahler's Ninth. The symphony has made in my psyche a complementary shape or impression of itself that is now permanently there to receive it, and into which it perfectly fits—because, to some degree, there it meets itself.

Perhaps this is easier to think about in terms of pop music. Throughout the late 1960s and into the '70s, many wondered who “the next Bob Dylan” or “the next Beatles” might turn out to be. After a while, this began to make as much sense to me as looking for lost keys only where the light is good. The very fact that those two pop cataclysms so profoundly affected everything and everyone who followed them was precisely what made it impossible for anyone ever to do it again, at least for a very long time. Those of us who hoped for such breakthroughs to happen “again” posited a paradox: Living in a world, and having selves, shaped to considerable degrees by Dylan and the Beatles, we wondered what could grow from within those selves and that world that would utterly transcend them in some new and unexpected way. But nothing can. Breakthroughs of such magnitude *will* happen again—they always do—but by definition, they will never happen when or where, or in any form or genre, that they are expected to. That would be expected, even foreseeable, and such breakthroughs are, by definition, shockingly neither.

In audio as in music as in life: Do we spend ever more on audio gear, and on constant upgrades, in an attempt to re-enact a breakthrough first made while listening to a car radio or a primitive dorm-room system? If so, it's important to remember that it certainly wasn't the quality of the gear that made that breakthrough possible. It was something in the music, in ourselves, in the times. It couldn't have happened without the sound, and the quality of that sound was not important. I'm not saying that such breakthroughs can never happen again—they can. But none of us is now the same person he or she was then, and they won't happen because we're listening to better gear than we were last year. They'll happen because we've opened our hearts, and the heart cannot be forced open by the will. As Sergiu Celibidache said of conducting the music of Bruckner: “You don't *do* anything—you let it evolve.” And when that is allowed to happen, it can make of life—and listening—a delight. ■

Richard Lehnert listens to Haydn, Bruckner, and Mahler in Oregon's idyllic Rogue Valley.



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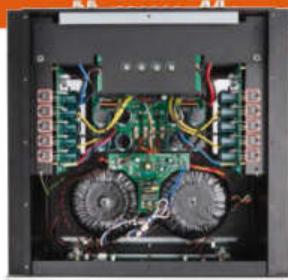


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As fresh musically as the day it was recorded—though its sound quality will always leave something to be desired—Bruce Springsteen's masterpiece *Born to Run* turns 40. By Robert Baird.

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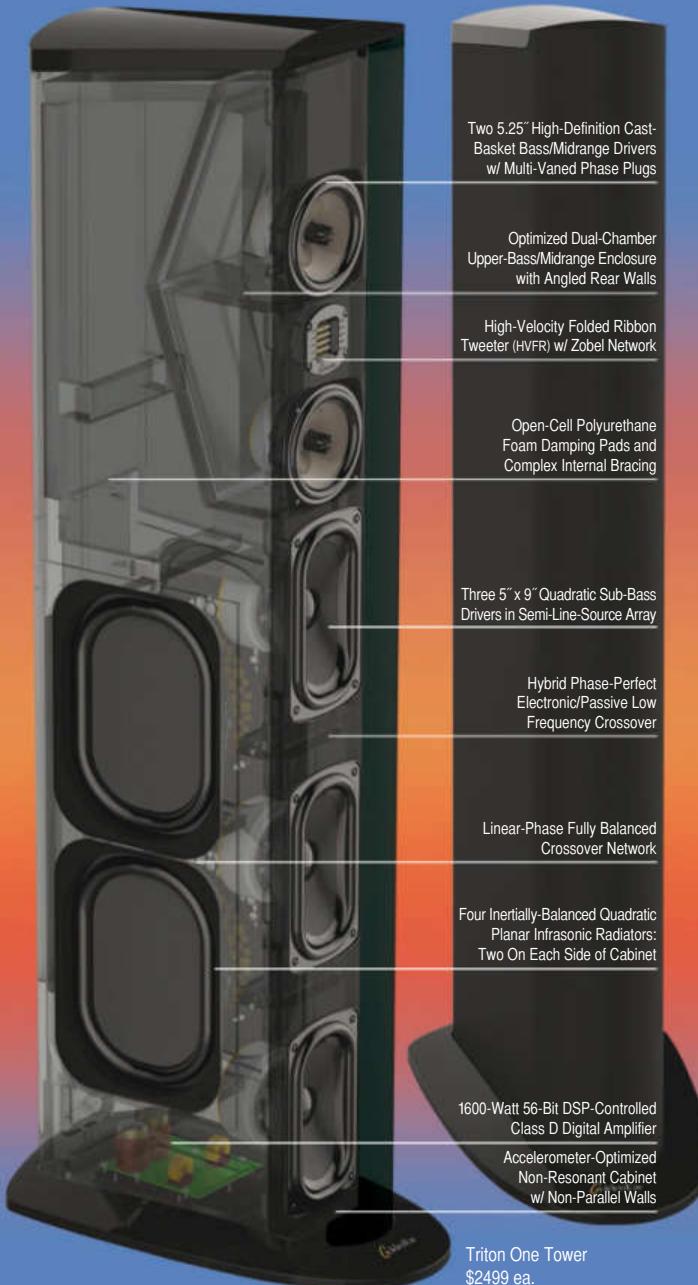


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“A Giant-Killer Speaker ... Borderline Class A”

– *Stereophile Magazine*

Stereophile's Recommended Components Class A rating is their highest and most coveted honor. This year, for Class A Full-Range speakers, there were 12 honorees, ranging in price from \$16,000 to \$200,000 a pair, with an average cost of \$54,000. The fact that of all the 22 Class B Full-Range speakers, only one, the \$4999 a pair Triton One, was singled out and praised as, “*Borderline Class A*”, is a very unique and significant honor, totally confirming its unique stature and achievement.

“An absolute marvel ... Triton One shames some speakers costing ten times as much.”

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– Dennis Burger, *HD Living*

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LETTERS

FEEDBACK TO THE EDITOR

TAKE HEED! Unless marked otherwise, all letters to the magazine and its writers are assumed to be for possible publication. In the spirit of vigorous debate implied by the First Amendment, and unless we are requested not to, we publish correspondents' e-mail addresses.

A gentle man has died

Editor:

Len Schneider was in the industry for many years. He was a pretty fair technical writer. I engaged him to help me write the owner's manuals (each over 80 pages) for our Halo C 1 and C 2 surround processors, and he was a pleasure to work with. I don't think he was capable of saying anything negative about people—a rare trait in our community. He died in hospice from cancer, following many years of health challenges.

—Richard Schram
Parasound

Merlin & Burmester

Editor:

The audio industry lost two great stars in August: Dieter Burmester and Bobby Palkovich (Merlin Music Systems). It is not often that we lose two such people in a week. I felt strongly about it, since I have personally had a deep interaction with Bobby of Merlin, and the memories will remain, as I am sure they will for many of your readers.

—Mahesh Parameswaran
Mumbai, India
mpwaran@yahoo.com

Paul Messinger's obituary for Dieter Burmester appears on p.20 and in the "News" section of our website, along with a tribute to Bobby Palkovich by his friend Rich Brkich.

—John Atkinson

Margaret Graham

Editor:

John Atkinson's mention, near the end of his Gamut RS7 review (September, p.67), of a CD review by Margaret Graham brought back many old memories. If I'm not mistaken, Margaret Graham was a pseudonym for Polly Holt, J. Gordon Holt's wife. I knew Polly and Gordon when they were living in the Philadelphia area and miss both of them. Polly wrote a lot like Gordon, able to put a lot of information and feelings in a few words in a manner that made you feel she was speaking to you.

—Allen Edelstein
Highland Park, NJ
hahax@verizon.net

Yes, Margaret Graham was Polly Holt's pen name. See Larry Archibald's comment at www.stereophile.com.

Margaret Graham was a pseudonym for Polly Holt, J. Gordon Holt's wife.

stereophile.com/features/708/index.html, just below the Vol.1 No.1 cover.—John Atkinson

Hits in seven/four

Editor:

It is amazing to consider that John Atkinson is perhaps not old enough to remember a band named Pink Floyd and their massive hit "Money." I cannot deduce any other reason why he would state that Peter Gabriel's song "Solsbury Hill" (September, p.62) was "surely the only song in 7/4 to become a mainstream hit."

—Sir Tim DuValier
Madison Heights, MI
duvalier1@yahoo.com

And now my face is red!!! Especially as I published a loudness analysis of "Money" in 2003: www.stereophile.com/news/11649/index.html. Of course, the main riff of "Money" is in 7/4. But in my defense, "Money" does revert to 4/4 for the bridge sections.—John Atkinson

Political rants

Editor:

I would like to propose that *Stereophile* print no more political lectures masquerading as letters to the editor of a stereo magazine ("The elephant in the room," August, p.124). Otherwise we'll be debating, say, the absurdity of the notion that the Earth's temperature never varied before Al Gore says it did. Or whether Steve Jobs would have bothered to invent the iPhone if his only incentive was the same equal income everybody else got. Boring, right? Let us first settle tubes-

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vs-solid-state and analog-vs-digital—real issues.

—Charlie Politi
Peoria, AZ
cp1868@gmail.com

Thank you for writing, Mr. Politi, but with respect, I think you are reading too much into that published letter. The two things that you mention as being "political" are actually facts: 1) There is no doubt that the Earth is warming; the debate concerns the role of human beings in that warming, which was not mentioned in the published letter, nor should it have been; and 2) There is no doubt that there has been a large increase in economic inequality since the turn of the century, this resulting in a reduction in the middle class's disposable income, which in turn has had a dramatic effect on sales of high-end audio equipment, other than at the very affordable and very expensive ends of that market. The reasons for this inequality were not mentioned in the published letter, but see my essay on its effects on the audio industry at www.stereophile.com/content/upward-price-spiral.—John Atkinson

The LS5/5a is like sex

Editor:

To ensure that Herb Reichert and your readers do not lie awake at night with masochistic dreams of the near-mythical ur-LS3/5a loudspeaker (August, p.85), I recall the following from the *Hi-Fi News & Record Review* shoot-out in 2001:

1) The handmade BBC prototype monitors, nos.0010–02, owned by Paul Whatton (whose father was on the design team), were, indeed, the best-sounding of the group. However, the listening tests were some of the toughest I've participated in, because the differences between the very best and the worst would be adjudged, in any normal situation, as audible but not blatant. There was no sonic massacre. However, I seem to recall that the Chartwells were so close to the sound of the BBCs that we gave that pair one of the highest scores.

2) What all the seasoned listeners agreed (they included Andy Whittle, ex-Rogers, and one who knows the speakers better than most) was that none of the 11-ohm/biwire LS3/5a's were as desirable as the 15-ohm/single-wire versions.

3) As explained to me on more than one occasion, every licensee had a BBC-approved reference pair against which to

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measure production models. The tolerances were tight, but it was still possible for LS3/5a's to sound a bit different one from another and still be within spec. Assorted websites have discussed this, as well as how standards slipped toward the end of the speaker's life, thus accounting for enthusiasts' preferences for early models.

For those who are obsessed by this magnificent little monitor—and both the

LS3/5a's are like sex: Even when they're bad, they're good.

Falcons and the Stirlings have met with the sort of approval that obviates the need to find a second-hand pair of proper KEF-drivered editions—hardcore Japanese and Chinese enthusiasts have also conducted tests on still more examples of LS3/5a's, including myriad limited editions from official licensees (eg, Harbeth, KEF, etc.) that we did not have at the 2001 session, as well as tests of unofficial clones of primarily Asian origin.

Many limited editions, using heavier, luxury woods or lacquer finishes, sound different because the nature of the cabinet has changed. Still, they, too, have their adherents. (Note: A book exists about the various LS3/5a's: *The Immortal Legend: LS3/5A*, by Wun Yi Mei, was published in Hong Kong in 2005, price HK \$80. Alas, it was available only in Chinese.)

For journalistic purposes, I keep a pair of late Rogers 15-ohm models and a pair of early Spendor 11-ohm/biwire models as “representative” of the two generations. I also own the original pair of Rogers AB1 subwoofers, nos.001/002.

Salivating collectors seem most excited by the vintage Chartwells, but there is no consensus beyond universal lust for the Chartwells. I know one enthusiast who raves about the Audiomasters, and another who will listen only to Goodmans LS3/5a's.

To put your readers' minds at rest—if they're inspired by Herb's review, please embrace this mantra: LS3/5a's are like sex: Even when they're bad, they're good.

—Ken Kessler

The failure of surround sound

Editor:

Since retirement, I have been getting seriously back into the audio I was forced to neglect for so many years. During my years of neglect, surround sound for serious music listening has come and gone.

(Over the past couple years it has hardly been mentioned in *Stereophile*, though there is an unabated procession of new and interesting stereo components.) We have two high-end dealers in our town (Ann Arbor), and both say that no one has shown interest in surround for some time.

During my hiatus years, did *Stereophile* chance to publish a substantial paper on the reasons why so many serious music lovers have failed to acquire high-end surround-sound systems? —Ed Poindexter
epoindex@tm.net

Thanks for writing, Mr. Poindexter. While Kalman Rubinson does contribute a bimonthly column on playing music in surround (see www.stereophile.com/category/music-round), we have never specifically addressed your question. In large part, I believe it stems from the failure in the mass market of the physical media for music-only surround recordings, DVD-Audio and SACD. SACD survives in a minor way as a primarily classical-music medium, while a small but increasing amount of classical music is being released on surround-encoded Blu-ray discs. Yes, the explosion in sales of home-theater systems from the mid-1990s to around five years ago led to a large number of consumers' homes being capable of playing music in surround. But most of those consumers aren't interested in sound quality, and the people who are interested have, in the main, stuck with two-channel reproduction.—John Atkinson

While you were away, Mr. Poindexter, many of us have pondered these matters and, of course, been greatly pained by the present situation. I, too, presumed that the rise of home theater would put systems capable of reproducing multichannel music-only recordings in many homes, and that this would result in the emergence of multichannel music as a viable medium. That did not happen.

Unfortunately, one can see, in retrospect, many reasons for this. First, it should have been obvious that the vast majority of the public that dotes on movies and HT has little interest in music. Few try to play music on their HT systems, and even when they do, it is likely to be from a two-channel source, at best, CD quality. Second, the failure of DVD-A to include video, and the failure of SACD to replace the CD because of dual inventory, meant that most consumers were unaware of even the existence of these media. Third, younger people have been raised in an era that presumes portability and convenience as essential, with the result that they are not generally exposed to the potential of high-quality sound, and certainly not to multichannel. Finally, traditional audiophiles seem to be content to continue to optimize their systems, but only within the confines of the two-channel paradigm. This encourages dealers to support the

status quo in audio while taking advantage of the HT market.

SACD continues to serve classical multichannel in a small way, but there has been serious retrenchment, even if one lumps in the current efforts in Blu-ray Audio. Unfortunately, classical-music lovers are a tiny part of the market, and even among them, interest in optimizing sound quality is not common. Many years ago, I spoke to Klaus Heymann of Naxos shortly after his label dropped DVD-A and moved their multichannel repertoire to SACD. I asked him why. He said that he was not committed to any format, and would provide what the market wanted. I think this is indicative of how most other producers see things, even if some audiophile labels seem to follow their own stars.

The only hope I see for music-only surround sound is in file-based playback. Because it is not based on hard media or even dedicated players, it is divorced from the traditional channels of disc creation, packaging, shipment, inventory, and, inevitably, returns. It can support niche interests and, one hopes, permit them to grow.

All that said, I revel in the sound of high-resolution multichannel recordings, and remain puzzled why others do not. There is so much to enjoy.—Kalman Rubinson

Turn it up

Editor:

In the August 2015 issue's Record Reviews (p.119), Robert Levine reviewed the Mahler Symphony 2 recording from Gerard Schwarz conducting the Royal Liverpool Philharmonic Orchestra (Artek 0061-2). Mr. Levine complained about the level of the disc being so low that he had to turn the volume control up to listen at a proper level. As John Atkinson noted, at the bottom of the review, “In this case, while you have to turn up the volume, Mahler's ‘explosions’ are captured and played back without compression.”

I am a recording engineer, capturing, almost without exception, acoustic performances. John's note should be trumpeted loudly to the audiophile community. Dynamic range—what you actually hear at the concert hall—is completely defeated by compression in the recording or mastering chain. The perception of a need to have a disc sound “loud enough” is a disservice to what we, as engineers and as listeners, really crave in a great playback of a great recording.

Compression of any sort has no place in the reproduction of acoustic music if we want to experience as close to “concert hall” realism as we can afford. Just reach over and turn up the volume.

—Douglas Tourtelot, CAS
Seattle, WA
tourtelot@gmail.com

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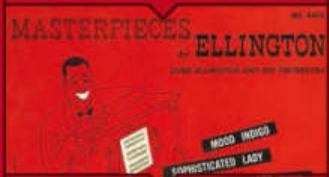
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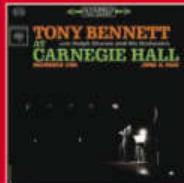


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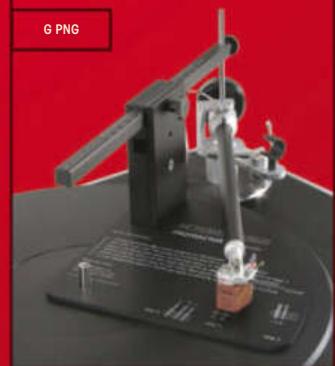


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INDUSTRY UPDATE

AUDIO NEWS & VIEWS

US: NEW YORK

John Atkinson

Back in the 1990s, record producer and audio writer John Marks offered me a report from a Consumer Electronics Show. Titled "Las Vegas on One Pair of Underpants," it outlined how he'd managed to cover the show after the airline had lost his luggage. The piece had me laughing, so when John subsequently approached me with an idea for a regular column in which he would write about audio components and recordings in equal measure, I was all ears. John's "The Fifth Element" premiered in our March 2001 issue, and in my welcome to him, in that issue's "As We See It," I asked him to describe his goal for the new column. Speaking of himself in the third person, he wrote:

"It is a commonplace to state that someone views audio equipment as only a means to an end, the end being music. John is different because he views music not just as an end in itself, but equally as a means of engendering spiritual growth in its hearers. If past forays are any yardstick, we can expect vibrant controversy after each installment of 'The Fifth Element.' A graduate of Vanderbilt Law School, John is up to the task of defending his views and himself."

Ever since, "The Fifth Element" has appeared in alternate issues of *Stereophile*—all 93 episodes can be found

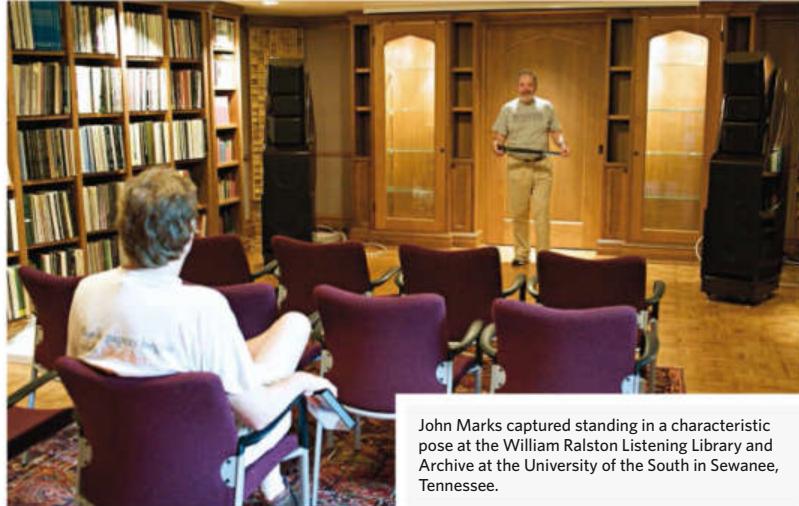
at www.stereophile.com/category/fifth-element—and there has indeed been "vibrant controversy" following the publication of each, as well as after each of John's occasional "As We See It" essays. His discovery last February,¹ for example, that the SACD reissue of David Oistrakh playing the Brahms Violin Concerto with George Szell and the Cleveland Orchestra had been speeded up, generated more letters

All of us at *Stereophile* wish John Marks well in his future endeavors.

from readers than any other recent article or review. I was saddened, therefore, to receive an e-mail from John in August in which he informed me that he was resigning. "For quite some time, I have known that my life is seriously out of balance," he wrote. "It is time for me to change my focus. I want to engage with stimulating new challenges that can employ a wider range of my talents."

All of us at *Stereophile* wish John Marks well in his future endeavors. Although he will no longer be contributing to the magazine, he remains a valued member of our extended family.

1 See www.stereophile.com/content/fifth-element-89.



John Marks captured standing in a characteristic pose at the William Ralston Listening Library and Archive at the University of the South in Sewanee, Tennessee.

SUBMISSIONS: Those promoting audio-related seminars, shows, and meetings should e-mail the when, where, and who to JAtkinson@enthusiastnetwork.com at least eight weeks before the month of the event. The deadline for the January 2016 issue is October 20, 2015.

CALENDAR OF INDUSTRY EVENTS

ATTENTION ALL AUDIO SOCIETIES:

We have a page on the *Stereophile* website dedicated solely to you: www.stereophile.com/audiophile-societies. If you'd like to have your audio-society information posted on the site, e-mail Chris Vogel at info@XLinkAudio.com.

Please note that it is inappropriate for a retailer to promote a new product line in "Calendar" unless this is associated with a seminar or similar event.

ARIZONA

■ Saturday, October 31, noon-4:30pm. The **Arizona Audio Video Club** will hold its monthly meeting at **USA Tube Audio**, in Scottsdale. We'll be listening to their front-line audio components from **Ayon Audio**, **Cary Audio**, **KEF Speakers**, **Mark Levinson**, **Synergistic Research**, and more. Guests are welcome and refreshments will be served. For more information, contact AAVC president Jeffrey Behr at jeffreybehr@cox.net, or USA Tube Audio at (800) 676-1085.

CALIFORNIA

■ Saturday, October 17, 10am-10pm: The **Burning Amp Festival** will be held this year in Silicon Valley, at **Interranea** (305 Walnut Street, third floor, Redwood City 94063). Because this new venue provides more listening rooms in which more systems can be auditioned, the organizers are asking exhibitors to demo their previously built and shown DIY components along with their latest creations. **Nelson Pass** will present his latest breakthrough, and offer three other presentations. All day, **Siegfried Linkwitz** will demo his LS Studio Speaker system with miniDSP crossovers and **Bruno Putzey's** Hypex amps. Food and snacks provided; lunch available. Exhibitors: Please arrive by 9am.

CONTINUED ON PAGE 23

GERMANY: BERLIN**Paul Messenger**

Dieter Burmester founded Burmester Audiosysteme GmbH in 1977 and ran it for 38 years. For me, he was the friendly face of an unusually friendly and outgoing German high-end hi-fi company. He died after a short but severe illness on August 15, and his company will badly miss him.

I first met Dieter years ago; he was playing bass guitar in a practice session with his band. Although he aspired only to play in a local band, the scene I witnessed pretty much summed up the man and his priorities. Burmester Audiosysteme, with its bright chrome-plated faceplates, is one of Germany's best-known hi-fi brands, but its founder's heart always remained in the music.

When we met, I'd already discovered that his belt-drive CD player sounded exceptional, but I was particularly intrigued when Dieter explained to me just how the belt-drive mechanisms were assembled. Apparently, just one of his employees had the necessary sensitivity of touch to carry out this work. The parts required for some 20 mechanisms would be laid out on



Dieter Burmester died after a short but severe illness on August 15.

a table, and this worker would arrive at the factory on a Saturday morning, when background noise and vibration in Berlin's business section were unusually quiet. He would then work his way through the parts, trying out the many possible combinations until he found the very best in terms of physical tolerances.

We'd invariably meet at the annual

Dieter Burmester demonstrates Burmester's sound system for Mercedes-Benz automobiles at the 2014 Munich Show.

High End Society show in Munich, where his infectious enthusiasm was always worth a paragraph or two of my show report. I well recall High End 2014, when he dragged me from one end of the hall to the other to show me the Mercedes-Benz in the

photo, which had been equipped with a high-class Burmester audio system.

The essence of Dieter Burmester is possibly best summed up in the company's Model 808. Although this modular preamplifier design is now in Mk.5 form, the very fact that it has been in continuous production since 1980, soon after the company was founded, is a powerful testament to the company's creativity and its design expertise.

“Dieter Burmester was more than just a partner in business, he was a dear friend that will be missed more than

PHOTOGRAPH: PAUL MESSENGER



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words or emotions can express," wrote Robb Niemann, CEO of Rutherford Audio, Burmester's North American distributor. "His passion for excellence in everything is a character trait that I have learned from and trust that I will be able to carry through my days."

Dieter had apparently anticipated the effect his passing might have on his company, and reportedly made arrangements for his wife, Marianne, to take over, and maintain continuity for the brand and its 60 or so employees. I shall miss seeing him in Munich next May, and will always be aware of the void he has left behind. It's good to know that his unique hi-fi legacy will be maintained by his successors.

UK: LONDON

Paul Messenger

Boxed sets seem to be the fashion in LP and CD reissues. They come in various formats, including A/V as well as audio-only, and although you won't get to spend the evening watching this one with your mates, it's the sort of production that will excite many collectors.

Queen, with singer Freddie Mercury and guitarist Brian May, may have



The remastered
Queen Studio
Collection
comprises 18 LPs.

been bigger in the UK than the US, but the band was nonetheless a major force in rock music in the 1970s and 1980s. Queen fans and vinyl enthusiasts alike will presumably welcome the decision of the Universal Music Group to release all 15 of the group's studio albums on vinyl. (I say "presumably" because, although some aspects of the reissue process appear to be well chosen, others are less likely to quicken the audiophile pulse.)

The *Studio Collection* project took five years to come to fruition, beginning with a search for the best possible sources. The plan had been to work

from the original analog master tapes, but as these needed some restoration, it was decided to carry out the necessary work on 24-bit/96kHz digital transcriptions of the masters. After a "double-blind" assessment procedure of these transfers, the task of remastering was given to the legendary Bob Ludwig, famous for his work with the classic catalogs of Jimi Hendrix and Led Zeppelin, among many others. Miles Showell, at Abbey Road, then cut the new master lacquers at half speed, using a well-maintained Neumann VMS80 lathe.

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*Gerald L. Gibson, Head of the Motion Picture, Broadcasting, and Recorded Sound Division of the Library of Congress, 1991

colored vinyl at Optimal Media, in Röbel, Germany, north of Berlin. Colored vinyl is notorious for adding background noise to records pressed from it, but Optimal has been heavily involved in researching new materials and techniques to avoid such compromises. The various colors were chosen to match the primary color of the album artwork, and careful listening comparisons were made with test pressings on black vinyl as well as original-issue LPs, using a high-quality though unspecified turntable. And while the complete boxed set will feature these colored discs, UMG also plans to individually release Queen's catalog on black vinyl.

This isn't the first time Queen's catalog has been repackaged; previous reissues, in the early 1990s, had to do with the emergence of the Compact Disc. The group's 15 albums appear on 18 LPs in order to accommodate all of the tracks on the CD issues, and to provide separate "Side White" and "Side Black" discs for Queen's *II* (1974), whose sides



Rega's limited edition Queen turntable, based on the RP1.

were never labeled "1" and "2."

Although I possess no original pressings of Queen albums, my wife has an original copy of *A Night at the Opera* (1975). I hope to get a reissue copy soon, and will report the results of my comparisons as soon as I can.

Rega Research will join the party by introducing a special, limited-edition turntable model: the Queen by Rega. This somewhat modified version of the relatively inexpensive RP1 will feature the Queen logo silk-screened

onto its platter, and, on its plinth, a badge: "QUEEN BY REGA."

UK: LONDON

Paul Messenger

Anybody visiting London should drop by the National Gallery. Its name might be a trifle intimidating, but the location, along one side of Trafalgar Square, is convenient-

ly central, and it houses one of the world's great art collections, representing art from before the Renaissance up through the Impressionists, and including some of the finest examples from each era.

Next door to the original classical-style building is a much newer extension, the Sainsbury Wing, which, through summer 2015, hosted the exhibition *Soundscapes*,² with a little help

² See www.nationalgallery.org.uk/whats-on/soundscapes.

CONTINUED FROM PAGE 19

Social Hour(s): 8pm. More information at www.burningamp.org, or contact Mark Cronander at mark.diyaudio@gmail.com.

■ Saturday, November 7, 2-5pm: The **Los Angeles & Orange County Audio Society** will hold its monthly meeting at **Sunny's Home Theater and Music Systems**, in Covina (1370 E. Cypress Street, Suite D). A broad variety of top-notch equipment will be on active display, including **Wilson Audio**'s Alexandria XLF loudspeakers, **Aerial Acoustics**' new Model 5T loudspeakers, **Meridian**'s innovative MQA encoding/decoding system, **Audio Research**'s Galileo line of electronics, **T+A Elektroakustik**'s electronics, **Harmonic Resolution Systems**' equipment stands, and new cable products from **AudioQuest** and **Transparent Audio**. Mark Leclair and Brad O'Toole of Meridian will conduct a special demonstration of the MQA system. Other industry presenters will include Peter McGrath of Wilson Audio, Michael Kelly of Aerial Acoustics, David Gordon of Audio Research, Mike Latvis of HRS, and from T+A, James Shannon, Norm Steinke, and Robb Niemann. A raffle is planned and lunch will be served. Guests, visitors, and new members are invited. Parking is free. For

more info, visit www.laos.com, or call Bob Levi at (714) 281-5850.

■ Thursday, December 3, 8-11 pm: **AudioVision San Francisco** (1628 California Street, San Francisco 94109) presents "From Digital to Analog," an evening event focusing on the latest and greatest in digital and analog playback, with Robert Watts, Chief Designer of the **Chord Hugo**, and hosted by Jeff Dorgay of **TONEAudio** webzine: hybrid electrostatic loudspeakers from **JansZen**, tube electronics from **Octave**, digital and analog cables from **Nordost**, innovative DAC technology from **Chord Electronics**, world-class streaming devices from **Lumin**, audio servers from **Aria**, turntables from **EAT** and **Dr. Feickert Analogue**, and a very special room featuring **Devialet** Phantoms. A seminar will be presented by representatives from each company. Refreshments will be served, and a drawing will be held for some FREE goodies! Come in for a wonderful and informative evening. RSVP: info@audiovisionsf.com or (415) 614-1118. For the latest info, check www.audiovisionsf.com.

■ Sunday, December 6, 11am-3:30pm: The **Los Angeles & Orange County Audio Society** will host its 22nd Annual Society Gala and Awards Banquet in the Grand Ballroom of the Holiday Inn, Buena Park (7000 Beach Boulevard). Harry

Weisfeld, founder of **VPI Industries**, will receive the Founder's Award for 2015 and provide the keynote address. In addition, Bob Attiyeh of **Yarlung Records** will be honored with the

Society's Humanitarian Award. Michael Fremer, senior contributing editor of **Stereophile**, will introduce Mr. Weisfeld. **Eastwind Import** will bring LPs and CDs for sale. Look forward to an extravagant holiday buffet and raffle prizes. Tickets will be available for purchase with credit cards at our website, www.laos.com, on October 1. Guests, visitors, and new members are invited, and parking is free. For more info, visit our website or call Bob Levi at (714) 281-5850.

FLORIDA

■ Saturday, November 14, 1-4pm: The **Space Coast Audio Society** will hold its monthly meeting at the Cascades Club House (1025 Clear Lake Drive, Deland). Douglas Hurlburt (founder) and David Sckolnik (sales and marketing director) of **Dynamic Sounds Associates** will present their new DSA Amp II solid-state, class-A amplifier, and their Phono II phono preamplifier and Pre I line stage. All LPs are welcome. RSVP to Chris Vogel (SCAS) at scas@xlinkaudio.com or (386) 423-4650; or to David Sckolnik (DSA) at david@dynamicsounds-assoc.com or (386) 873-2388.



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Steve Plaskin; *Audio Stream*
August 27, 2015

HYDRA TRITON V2

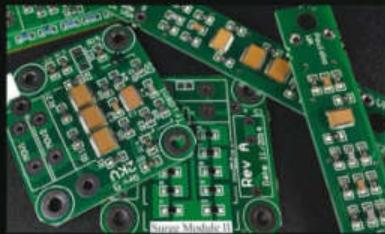
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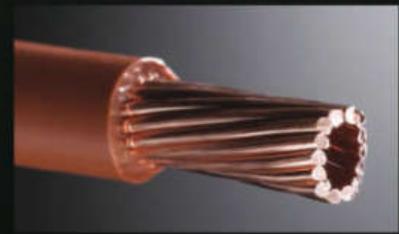


Patent US 8,658,892

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from loudspeaker company Bowers & Wilkins and cable manufacturer the Chord Company. For *Soundscapes*—part of the *National Gallery Inspires* series of exhibitions—each of six composer-musicians was asked to choose one picture from the collection, then compose appropriate musical accompaniment. The musicians were from a variety of disciplines, including installation artists, a wildlife-documentary soundtrack recorder, a DJ, and composers of film and contemporary classical music. The paintings, each displayed in its own soundproofed room, cover an equally wide range, and include *The Wilton Diptych* (ca 1395–99) and Hans Holbein the Younger's wonderfully weird *The Ambassadors* (1533), with its elongated skull in the foreground.

Soundscapes required a total of 63 speakers, including subwoofers, and 3km of Chord's Leyline speaker cable, an inexpensive model that was thought to work particularly well over long

runs. The longest run in the Sainsbury was nearly 300' (75m), from control room to speakers.

I've only just heard about *Soundscapes*, which closes in early September; it will be over by the time



Left: A Soundscapes visitor admires Holbein the Younger's *The Ambassadors*. **Right:** The Chord Company's Leyline speaker cable was used to wire the Soundscapes exhibition.

you read this. However, I hope other galleries and museums around the world will try similarly creative ways to display their collections. ■



GEORGIA

■ Sunday, October 18, 2–5pm: The **Audio Video Club of Atlanta** and the new **HiFi Buys A/V Store**, in Buckhead (3157 Peachtree Road NE, Atlanta; 770-931-0606; www.hifibuys.com), are hosting a program featuring **Audio Research**, **Dynavector**, **Grado**, **Magnepan**, **PSB**, **Rega**, **Vandersteen**, **VPI**, and many other top brands, as well as an extensive collection of fresh LP pressings. Guests welcome; refreshments provided. For information, contact John Morrison, President, at (770) 330-3919 or jhm3@bellsouth.net; or Chuck Bruce, VP, at (770) 550-1434. Visit the club's website for latest details: www.a-vcoa.org.

■ Sunday, November 15, 2–5pm: The **Audio Video Club of Atlanta** and **Oracle Audio Technologies** of Quebec, Canada, are hosting a showcase of Oracle's latest products, including the Delphi Mk.6 Gen.II turntable, the Paris PH-100 and -200-series phono preamps, and the Paris 250-series CD players. Guests welcome; refreshments provided. Location: Dunwoody North Driving Clubhouse, 4522 Kingsgate Drive, Dunwoody 30338. For information, contact John Morrison, President, at (770) 330-3919 or jhm3@bellsouth.net; or Chuck Bruce, VP, at (770) 550-1434 or chucksaudio@mindspring.com. Visit the club's website for latest details: www.a-vcoa.org.

ILLINOIS

■ Thursday, October 22, 5–9pm: **Quintessence Audio** of Morton Grove (5701 W. Dempster, just north of Chicago) welcomes Garth Leerer and Jesse Luna of **Musical Surroundings** for an evening of analog, tubes, and music. New products to be featured include the **Aesthetix** Atlas Eclipse stereo power amp, **AMG** Giro turntable with Teatro MC cartridge, **DS Audio** optical cartridge, and **Clearaudio**'s Double Matrix Professional S record-cleaning machine. Refreshments will be served. RSVP to (847) 966-4434.

LOUISIANA

■ Friday, November 13, 4pm: **Wilson Audio** (3133 Edenborn Avenue, Metairie) will be hosting a Q&A event with **Rogue Audio**'s Mark O'Brien and Bill Magerman. This will be a great opportunity to speak with Rogue's designer and learn about his design philosophy. To reserve a seat or for more information, please call Doug at (504) 888-8851.

MINNESOTA

■ Tuesday, November 17, 7–9pm: the **Audio Society of Minnesota** will hold its monthly meeting at the Pavek Museum of Broadcasting (3517 Raleigh Avenue, St. Louis Park 55416). Refreshments will be served, and guests, visitors, and new members are welcome. For more

information, visit our website: www.audiomn.org.

NEW JERSEY

■ Saturday, November 21, Noon–5pm: **Audio Connection** (615 Bloomfield Avenue, Verona) welcomes Garth Leerer and Jesse Luna of Musical Surroundings on for their 5th annual Analog and Tubes Open House. New products to be featured include the **Aesthetix** Atlas Eclipse stereo power amp, **AMG** Giro turntable with Teatro MC cartridge, **DS Audio** optical cartridge, and **Clearaudio**'s Double Matrix Professional S record cleaning machine. Refreshments will be served. Please RSVP to (973) 239-1799 or email audioconnect@verizon.net.

NEW YORK

■ Friday–Sunday, November 6–8: The Chester Group's fourth **New York Audio Show** takes place at the Hilton Westchester Hotel, in Rye Brook. Details at www.chestergroup.org/newyorkaudioshow/2015.

TORONTO, CANADA

■ Friday–Sunday, October 30–November 1: **The TAVES Consumer Electronics** show takes place at the Sheraton Parkway Hotel in Richmond Hill, Ontario. Details at <http://taveshow.com>.



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ANALOG CORNER

BY MICHAEL FREMER

THIS ISSUE: A brief respite for the Continuum Audio Labs Caliburn.

The TechDAS Air Force Two turntable & Graham Engineering Phantom Elite tonearm

How big is the performance gap between TechDAS's new Air Force Two (\$52,000) and original Air Force One (\$105,000) turntables? How do you halve the price without also sacrificing the build quality and features of the flagship model that defines the brand? Even \$52,000 is more than most people pay for an automobile, not to mention a turntable. Still, TechDAS's assertion on their website that the price of their new model is "reasonably improved" over the old strikes me as an understatement.

How much sound and build quality, and which features, do you give up by saving \$53,000? Very little of any of those things, as far as I can tell. The Air Force Two retains most of the Air Force One's core technologies: belt drive by an outboard AC synchronous motor; a microprocessor-controlled Twin Phase DC power amplifier to drive that motor (allowing 10% pitch control in steps of $\pm 0.1\%$); and the One's air-bearing platter and vacuum record hold-down system, driven by an absolutely silent outboard air pump and condenser, housed in a box that also includes the 'table's power supply.¹

TechDAS has cut costs in the Two's 22-lb platter, which is machined from solid aluminum. (The One's stainless-steel platter weighs 63 lbs.) And instead of the One's three user-changeable platter-surface options, the Two offers one: an unspecified "thin film damping material."

Because of the Two's different distribution of weight, the One's tripod air-suspension system has been replaced by a four-poster design. The height of each corner support column is adjustable. Each column has a sealed, air-filled upper chamber, combined with a sealed, oil-filled, "rubberoid" lower chamber with a built-in spring.

In the Air Force Two, TechDAS has also saved a bundle by replacing the One's curvaceous, CNC-machined, multilayer chassis—magnesium alloy on bottom, zinc-aluminum alloy in the middle, and a different aluminum alloy on top—with a large, massive chassis of two layers, both made of precision-cast aluminum painted in a shade of gray that TechDAS describes as "a calm



Two arms, no waiting: the Tech DAS Air Force Two.

How much do you give up by saving \$53,000?

color of feeling." This chassis is about 27" wide by 7.5" high by 18" deep and, on its own, weighs 72 lbs—hardly a lightweight. (The Two's total weight is 103.4 lbs, compared to the One's total weight of 173.8 lbs.)

Here's where taste enters the picture. I've heard some people complain that its painted surface—which, if you gaze deeply into its "calming color of feeling," has visible orange-peel—makes the Air Force Two look cheap. Not me. I like the Two's fit'n'finish. What's more, I prefer the Two's appearance overall to the One's, which I

think looks too busy.

Setup

The Air Force Two arrived in two large wooden crates shipped from TechDAS's US importer, Graham Engineering. Bob Graham and I hoisted it

in place atop my Harmonic Resolution Systems rack. Even my oversize HRS M3-1925 isolation base wasn't quite wide or deep enough to accommodate the Two's feet, but Graham had brought along an even wider, deeper TechDAS base designed especially for it. I placed four Stillpoints Ultra SS feet at the corners, between the bottom of the TechDAS platform and top of the HRS base, "just because." I then had no practical way of removing the Stillpoints, so I can't say whether they contributed in any way to the sound, or to the efficacy of TechDAS's isolation system.

I'll skip the setup procedure. For this kind of money, your dealer should

¹ I reviewed the Air Force One in April 2013.

perform it, though it's worth noting that the belt's tension is set using a knob on the motor housing. This moves the motor's pulley enough to tighten the polished, nonflexible belt of polyurethane fiber. The motor controller's microprocessor aids in precisely calibrating the ideal tension, after which it calibrates and precisely stores in memory the settings for both 33 1/3 and 45rpm. Every aspect of its setup exuded the precision that the Air Force Two then fully delivered, both mechanically and sonically.

Graham Engineering

Phantom Elite tonearm

Because Graham Engineering imports the Air Force Two; because Tech-DAS's parent company, Stella Inc., imports Graham Engineering tonearms to Japan; and because the two companies' products are often displayed together at audio shows, I figured it was a good time to get acquainted with Graham's new Phantom Elite tonearm (\$12,000). I also asked Marc Gomez, of Swedish Analog Technologies, to send me an armboard for his SAT arm, and Bob Graham was kind enough to supply the same secondary mount for



Graham Engineering's Phantom Elite tonearm is available in 9", 10", and 12" versions.

the Kuzma 4Point arm that he'd sent when I reviewed the Air Force One. As with the Air Force One, the Two's second tonearm base is a cantilevered add-on that's bolted to the side of the chassis, rather than a duplicate of the first armbase bolted to the top.

The Elite looks very similar to the standard Phantom arm, with the same features, including an inverted unipivot bearing that's ingeniously laterally stabilized by Graham's patented Magneclide system; the latter uses a pair of magnets to enable easy adjustment of azimuth, and to



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maintain azimuth under all record-play conditions. It also allows for true *neutral balance*: In unipivot designs from many tonearm makers, including VPI and, formerly, Graham, arm stability is achieved with weights placed well below the pivot point; that puts the arm's center of gravity below the pivot, producing a *stable balance*. (Having an arm's center of gravity above the pivot point would result in *unstable balance*.) Stable balance may sound like a good thing, but it means that the arm resists any change in position in the vertical plane: Assuming VTF was set with the stylus at the level of the record, which is as it should be, VTF will measurably increase as the headshell rises above that level—meaning that VTF will continually change when a stable-balance arm traces a warped record. With Magneglide, the arm stability that traditionally required a low center of gravity is achieved magnetically, allowing the arm to have neutral balance—and consistent VTF when playing warped records.

While it looks very similar to the Phantom, Graham insists that the majority of the moving system is upgraded, using more costly materials.

For example, the Elite's completely redesigned pivot-housing assembly is made from brass and tungsten in a “constrained-layer combination.” The use of such high-density materials is claimed to ensure high absorption of energy and tighter manufacturing tolerances, for ultralow-friction pivoting that's free from chatter. The counterweight is decoupled at a subsonic resonant frequency, which is said to result in cleaner, more dynamic bass extension and a more detailed midrange. The new, removable arm-tube of damped titanium is thicker and more rigid, and is available in lengths of 9", 10", and 12". (I was sent the 10" version.) Also new are internal Litz wiring and a refined alignment gauge that's adjustable to accommodate cartridges of all heights. Nonetheless, the Phantom Elite is, for all intents and purposes and as its name suggests, a reimaged and upgraded Phantom, not something completely new—even if almost all of its parts are.

The Phantom and Phantom Elite are available with both circular and SME-type sliding-base mounting platforms; the latter makes it easier to adjust the pivot-to-spindle distance using Gra-

ham's nifty spindle-to-headshell alignment system. (For the Air Force Two, TechDAS supplies an armboard with a wooden insert that accommodates the SME mount.)

The Air Force Two's Fortress of Solitude

When it comes to turntable plinths, I'm generally a less-is-more guy—unless the design is heroic, as in Continuum Audio Labs' Caliburn's computer-designed plinth of cast magnesium alloy. This is one area in which VPI's Classic Direct turntable falls short: Its large MDF base, despite being damped with a massive aluminum top plate, is surprisingly lively: With the stylus sitting in the groove of a non-spinning record, tapping the plinth or its support base produced through the speakers a loud *thump* with a significant low-frequency component.

When I applied that tap test to the Air Force Two's massive cast chassis, my speakers produced a faint, very well-damped *pep*. Tapping some locations on the top of the chassis produced an almost complete absence of audible response. Impressive. Equally impressive were my measurements of the Air Force Two's speed of rotation,



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using Dr. Feickert Analogue's 7" test record and PlatterSpeed app (see figs.1 and 2). All of which are as they should be in a turntable that costs \$52,000 without tonearm. For \$30,000, VPI's Classic Direct includes the highly accomplished 3D printed tonearm and produces speed results almost as good.

Easy to Use, Easier Listening

I preferred the Air Force Two's looks to the One's. More to the point, I preferred the Two's sound. In all fairness, the Air Force One I reviewed was a very early sample that I probably shouldn't have been sent in the first place. Mid-review, the One's suspension system was changed to air, and upgrading the review sample wasn't possible.

Whatever it was, the Air Force One I reviewed seemed not to speak with one voice, in the manner of the VPI Classic Direct. Something about its sound seemed discontinuous, in a way that prevented me from forgetting about *it* and just sinking into the music. Perhaps the designers at TechDAS heard it too, and that's why they changed the suspension? I really should revisit the Air Force One.

Meanwhile, I've enjoyed the Air Force Two's stay here 100%. It performed as a neutral conduit should, allowing the various tonearms, cartridges, and phono preamplifiers I tried with it to assert themselves, without inserting itself into the sound. And this was an exceptionally quiet turntable. Even using a stethoscope, I could hear no noise of any kind, even when I started up the motor. Speaking of which, it takes approximately 15 seconds for the AF2 to reach and lock to the chosen speed, but it's well worth the short wait, and a fluorescent screen at the front of the top panel lets you know when speed lock has been achieved.

The Air Force Two's speed stability was evident with well-pressed, *concentric* LPs of solo-piano music. One, "D'ombre et de lumière . . .," a recital of music by Albéniz, Falla, Granados, and Villa-Lobos by the Brazilian pianist Magda Tagliaferro (1893–1986), got numerous late-evening plays (LP, EMI/Electric Recording Company ERC 012; all-tube-mastered, pressed in a limited, numbered edition of 300 copies; £300 each). Precise stability of speed results in far more than an absence of wow



Fig.1 (left) TechDAS Air Force Two, speed stability data.

Fig.2 (right) TechDAS Air Force Two, speed stability (raw frequency yellow, low-pass filtered frequency green).

and consistent pitch. It also produces delicacy and precision of attacks, as well as solid, insistent sustain that's reminiscent of the real thing.

The AF2's quietness helped deliver generous decays into aural blackness—and, of course, the complex tonal bouquets that this LP can produce were fully expressed, perhaps thanks to the TechDAS's massive, well-isolated, and critically damped chassis. Overdamping a turntable kills sustain and squelches decays, resulting in a deadened sound. Underdamping lets resonances develop that kill detail, interfere with rhythm'n'pace, and can produce gross tonal colorations—probably the most obtrusive and objectionable sins a turntable can commit. This is why turntable design is a combination of the proper application of technology and very careful listening. From what I heard, I'd say that the Air Force Two's designers listened very well indeed: Its overall balance of all of these aspects of sound struck me as ideal.

In a side-by-side comparison, the Air Force One might produce a bit more weight and low-energy texture and drive than the Two (just guessing), but even driving a system (mine) that goes down low, the AF2 sounded in no way lightweight.

No doubt its accuracy of speed made possible the Air Force Two's sensational image stability and solidity, and well-defined soundstages that vividly expressed the width, depth, and height of the venues of familiar live recordings. When everything locks in the way it did with the AF2, I start pulling

The AF2's quietness helped deliver generous decays into aural blackness.

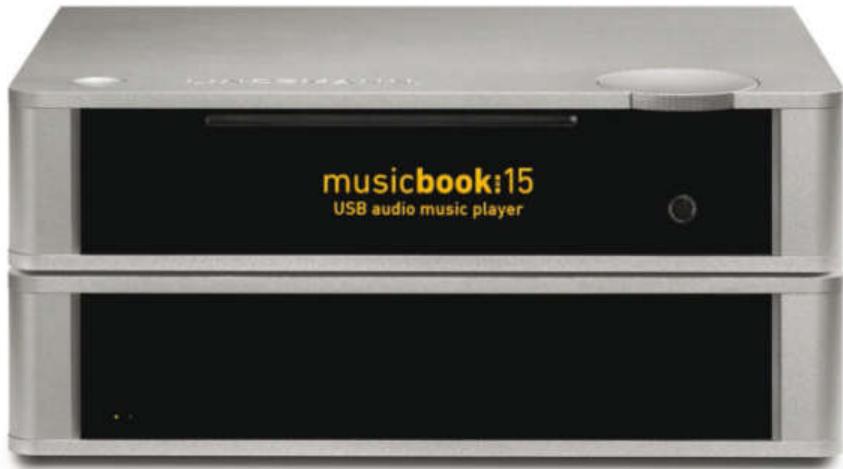
live recordings from my shelves and stay up way too late playing them. That didn't happen with the AF1; I reviewed it, then went back to the Continuum Caliburn. With the AF2, as with VPI's Classic Direct Drive, I was happy to let the Caliburn gather some dust (though I happily returned to it later).

I tried many familiar cartridges on the Air Force Two, and I found that its essential tonal neutrality let each express its distinct personality—though these days, the best cartridges don't exhibit gross colorations. The Ortofon Anna, for instance, has more bottom-end warmth and majesty than punch; a turntable or, especially, a tonearm that can't deal with that bass energy will produce excessive warmth that can muddy the bottom end. The Anna sounded full-bodied and weighty in all three of the arms I used for this review, but the Swedish Analog Technologies (SAT) pulled from it the most weight and rhythmic authority. The Kuzma 4Point had the weight but lost some of the texture; the Graham Elite had the texture, but definitely not the full weight.

Anyone who thinks that Lyra's Atlas or Titan *i* sounds too analytical should hear either on the Air Force Two with any of these arms, but especially the SAT. Both sounded positively *creamy* in the mids on all three arms. The silky sound of the Fuuga cartridge, which I reviewed in my October column, was as fully expressed through the Air Force Two as through the Caliburn. (Incidentally, both of those turntables were far kinder to the Fuuga than was Sperling-Audio's \$9750 TA-1 arm, which pushed its own lower-midrange muddiness into the silk.)

Just before deadline I received Gregorio Paniagua and Atrium Musicæ

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Pictured above is the Musicbook 15/55 system. On the outside it's sumptuous, graceful and cleverly designed with refinements and finesse worthy of Dr. Jekyll. It features: solid aluminum casework, state-of-the-art DACs, a full-function remote control and an easy-to-use one-touch control wheel.

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LINDEMANN.

de Madrid's *La Spagna: A Tune through Five Centuries* (2 LPs, AudioNautes AN-1401), a limited-edition reissue of a classic recording from 1980 long regarded as a sonic spectacular (SACD/CD, BIS 1963). The reissue was one of the late Stan Ricker's final projects, and is a fitting farewell from the second master of lacquer cutting we've lost this year. (The other was Doug Sax; Analogue Productions' Chad Kassem bought Sax's The Mastering Lab and is moving it to Salina, Kansas.)

Ricker cut the lacquers for *La Spagna* at half-speed from the original analog master tapes, using no noise reduction, equalization, compression, or limiting. It took a dozen tries to get it right, and his work was worth the effort. This ultraspacious, spectacular-sounding recording was made in the Chapel of the Imperial College, Madrid, using two Sennheiser MKH 105 microphones and a ReVox A-77 tape recorder. It's mostly dance music of the 15th and 16th centuries, performed on original instruments—the kind of percussion-laden nightmare no phonograph is supposed to be able to reproduce without smearing transients and/or mistracking. The music will knock you out; if your system can handle it, so will the sound. The transparency, spaciousness, transient clarity, macro- and microdynamic expression, and instrumental three-dimensionality and solidity are absolutely sensational.

Listening to these two LPs over and over made me wonder if any analog front end could reproduce them—or any of the other records I played on the Air Force Two—with any greater authority or verisimilitude. Everything I played provided an I-was-there experience.

I loved the TechDAS Air Force Two. It's among the very finest turntables that I've reviewed, at any price (especially a "reasonably improved" one). But other contenders are already on the way. (And next time, more on Graham's Phantom Elite tonearm.)

10 Years After: Continuum Audio Labs Caliburn turntable

It's difficult to believe that 10 years have passed since I first reviewed Continuum Audio Labs' Caliburn turntable, Cobra tonearm, and Castellan turntable stand.² Don't let the photo fool you! In the service of someone who reviews audio gear and records, this complex piece of machinery has been beaten up in ways no consumer



Before (below) and after (above) installing the SAT tonearm on the Continuum turntable.

would ever subject it to, but it has never broken down or presented me with any kind of problem. That's the sort of longevity you should expect from any pricey audio component—especially a record-playing system that costs \$200,000—but not all of them deliver. Nonetheless, despite the punishing work schedule I've set the Continuum, it's never troubled me with problems having to do with the motor, speed control, bearing, or vacuum hold-down.

What's more, once I set the speed, it stayed put, precisely. The Caliburn hasn't needed tweaking or constant adjusting or trimming of *anything*. It's proven to be the reliable workhorse Continuum claimed it was, and it's still my favorite-sounding turntable. Its balance of information retrieval and musicality has yet to be topped, though the Onedof, the VPI Classic Direct, and one or two turntables—now including the TechDAS Air Force Two—are right up there.

At audio shows, when I play high-resolution files I've made of LPs played on the Continuum system, people hear what's special about it without knowing what it is. The Ypsilon Electronics VPS-100 phono preamplifier (just back from being updated, after five years of heavy use and no problems) also contributes to the special sound produced by these files, which you can now hear on my new weekly *Analog Planet* radio show on WFDU.fm.³

So why is my Caliburn in pieces? I'm having a new armboard made to



accommodate the Swedish Analog Technologies tonearm, which will replace the Cobra: As good as the Cobra is, the SAT is so much better.

I confirmed that opinion recently at a friend's place, where we listened to his Caliburn rig, then replaced his Cobra with the SAT. Thank God, he and everyone in the room heard what I'd heard here—my friend had bought the expensive (\$28,000) SAT arm based only on my review. Whew! This job is a pressure cooker. ■

2 See my reviews in these issues: January 2006 (www.stereophile.com/turntables/106con/), March 2008, and July 2012.

3 Broadcast live every Monday at noon EST. Click on the Listen tab, then on Listen Live HD2. By the time you read this, the HD radio channel should be broadcasting and the shows should be archived and available on demand; if not, you can stream them at AnalogPlanet.com.

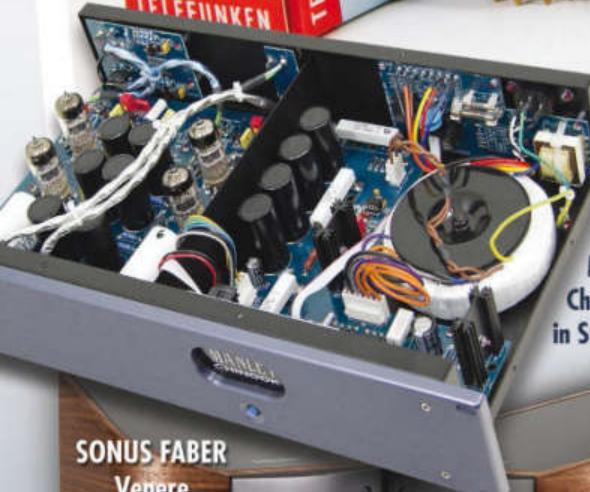
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LISTENING

BY ART DUDLEY

THIS ISSUE: Art culls his record collection and listens to Allnic's T-1800 integrated amplifier.

Miracle Surface

Please don't tell her I said this, but lately, my wife has been getting twitchy about my records. Twitchy as in: She wants me to sell them. Or at least some of them.

I have only myself to blame. For years, I have shared with her my every joy that came of finding, at a lawn sale or garage sale or on eBay or at a record store whose proprietors "had no idea what this thing is worth," some rare and valuable treasure. And therein lay another facet of my problem: As often as I would rejoice at the music I was poised to enjoy, or the sheer pleasure of acquiring something rare and well made, I would roll, pig-like, in the pleasure of the thing's potential monetary value. Old Testament-style dark clouds fill the sky outside my window even as I type this.

There are sexist stereotypes, and there are behavioral quirks that manifest in different ways, depending on gender. It is with the latter in mind that I offer this observation: A woman with a practical, frugal nature can withstand hearing the rhetorical question *Do you know how much I can get for this thing?* only so many times before she demands, *Then go get it!*

Because I regard my wife and my daughter as my two greatest blessings, with music in a distant but nonetheless deeply appreciated third place, I decided to act, howsoever smallly. I set about culling from my collection those records that are light in rotation, and for which I might reasonably expect to get a good price. As it turned out, my appraisals hinged not only on market value, but on whether that value was determined by acclaim for a given record's musical content or by acclaim for the quality of its sound.

And I came to realize, almost by accident: Those records in my collection whose values are determined by their sonic and musical worths are, for me, literally indispensable. For example, I discovered on my classical shelves some original Decca SXLs I'd forgotten were there, and most of whose origins I can't recall. I sat down to play a few, intending only to grade them for possible sale, and wound up staying up half the night. The most stunning of the lot—a wide-band, deep-groove¹ pressing of Britten's Serenade for Tenor, Horn, and Strings, Op.31, sung by Peter Pears, with the composer conducting the Boyd Neel String Orchestra (Decca SXL 6110)—required a second listening before I



Contact High with the Godz: "I like you."

Records whose values are determined by their sonic and musical worths are literally indispensable.

finally trudged off to bed. How could I part with such a thing? I can imagine no Decca SXLs, no Blue Notes, and very few EMI ASD-series records with which one should ever, ever part.

By contrast, about a third of all my RCA Living Stereo discs and all but two of my Mercury Living Presence records are outta here.

But . . . big bass drums!

While a considerable majority of Decca's classical records succeed on the basis of both sound and musical content, there appear to be many RCA releases that fail almost equally in those same two respects. With regard to the

former, and while acknowledging the existence, in the Living Stereo series, of some well-balanced, colorful, and spatially very accomplished recordings, at least as many others are opaque and unclear—a few are downright fuzzy—and none delivers the *clarity of touch* found in the vast majority of Decca fss records. None.

As far as music is concerned, and despite a roster of artists including some of the finest soloists of their day—violinist Jascha Heifetz chief among them—few purely orchestral recordings in the RCA Living Stereo catalog are worth dying for, owing to a lack of conductors in that label's employ who were artistically distinguished as opposed to merely technically capable. Consult virtually any well-sourced list of the 20th century's greatest conductors and you'll find names associated with Deutsche Grammophon, EMI (including Columbia UK), Columbia, Decca, Philips, and one or two smaller and comparatively newer labels. But among RCA recording artists, only Arturo Toscanini appears on more than one or two such lists, and even then, with qualifications withholding praise for his artistic point of view. And Toscanini never recorded in stereo, Living or otherwise.

When I was in my 30s, I searched out and bought a fair number of RCA Living Stereo LPs because they'd been praised by audio critics (but far less often by *music* critics). I readily admit to being impressed with the sound of most but not all of those recordings—even then, I couldn't help wondering how anyone could regard the rag-tag collection *The Reiner Sound* as a good recording, let alone a great one—until I heard the far better-sounding classical LPs made by Decca and EMI. And as the years went by and I discovered recordings made by Leonard Bernstein, Carlos Kleiber, Rudolf Kempe, Ferenc Fricsay, Sir John Barbirolli, and, above all, Wilhelm Furtwängler . . . well, let's just say it isn't often I feel compelled to

¹ This refers not to the record groove, but to a groove within the label area on each side of the record.

turn to the Reiner version of anything, perhaps other than Strauss's *Salomé* excerpts or Bartók's *Concerto for Orchestra*. (And for those times when I *am* in the mood for Reiner's brand of tightly controlled, highly polished, turn-on-a-dime orchestral sound, George Szell did it better. *A lot* better.)

But those RCA records, though urged on me by audiophiles, weren't nearly as bad as *audiophile recordings*. Indeed, for enthusiasts who value spatial performance far more than I do, and who aren't dismayed when pizzicato strings don't sound as though their appearance in the air resulted from any sort of physical labor, Living Stereo LPs and even CDs are perfectly fine: different strokes, and all that. And as for audiophile recordings, you can rest assured that I have now purged my collection of Dick Schory's *Music for Bang Baaroom and Harp* (an RCA Living Stereo record—of course) and other such leavings.

Speaking of which: Let me remind you of the ninny who, after being bullied and conned into buying, in 1985, a copy of *The Sheffield Track Record*, needed almost an entire year before he could admit that, a) its grooves were

encoded with some of the worst music ever committed to vinyl, and b) the recording itself wasn't even all that good. Then, in a fit of anger directly proportional to the amount of time spent in self-delusion, this poor fool made a show of trying to fold it in half before stuffing the piece of shit down the garbage chute of his apartment build-

Few purely orchestral recordings in the RCA Living Stereo catalog are worth dying for.

ing—only to learn, 30 years later, that surviving copies sell for \$119.² On the other hand, destroying a copy of *The Sheffield Track Record* is likely, for some, to generate \$119 worth of pleasure.

But wait: Did I say \$119? I did—and that was a single instance, for a sealed copy. Typically, you can find a copy of that rare, limited-edition, grooved turd for less than \$40: the price of a couple of cosmopolitans, sans tip, at the St. Regis Hotel bar. On the other hand, original copies of Pathé's *Mozart À Paris*, by conductor Fernand

Oubradous *et al.*, famously reissued by the Electric Recording Company, sell for nearly \$12,000; mint original mono copies of *The Beatles* sometimes break the four-figure barrier; and an original LP copy of Sonny Rollins's debut recording, a copy of which I recently followed on eBay with silly hope, sold last week for \$1328. Why? Because those are LPs filled with great music—LPs that, secondarily, also happen to be good or at least distinctive recordings. *The Sheffield Track Record*, by contrast, is blandly lame *product* presented in slightly-better-than-average sound. The majority of RCA Living Stereo records are good-but-not-breathtakingly-great performances of standard-repertoire classical music in sound that is often better than average but still shy of the best.

The image of the hair-shirted, he-man anti-audiophile endures, and I'm sufficiently capable of self-flattery that I have, at times, cultivated such an image for myself. But it enjoys even less justification than I suspected: A surprising number of my most beloved records sound good in spite of

2 That would be me.

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themselves. For instance, whenever I want to show someone that I like him or her, I put on *Contact High with the Godz* (LP, ESP 1036), the 1966 debut by proto-punk band the Godz. Nothing says "I like you, I trust you, I want you to hear something that will really expand your idea of what folk music is

all about" than *Contact High*. The selections on that LP are innocent, charming, sung and played with an almost shocking degree of incompetence—and surprisingly well recorded. This very rare record is apparently most rare in its stereo form, which I own—and intend to keep.

ALLNIC ON THE WESTERN FRONT

I was glad to see, on the cover of our October issue, an audio amplifier designed around an otherwise underappreciated power tube: the reliably luminous 845 directly heated triode. Props to my longtime friend and colleague Herb Reichert for singing the praises of the Line Magnetic LM-518IA integrated amplifier, and for being second to none in his ability to express delight in a pastime too often purged of same. (I'm reminded of the line by songwriter Andy Partridge: "Don't let the loveless ones sell you a world wrapped in gray.")

At the same time, let's not become too blasé about our more familiar tubular friends: the 12AX7, the KT88, and the EL34—especially the EL34. That classic pentode tube, introduced

in 1954 by Mullard Ltd., has been at the heart of some of my favorite amplifiers, most of which commit the equally counterrevolutionary sin of being push-pull instead of single-ended. How I would hate to wind up in a world in which fondness for push-pull EL34 amplifiers is met with the same scorn as love for Elton John records, some of which are actually pretty good.

Today I'm enjoying a new EL34-based integrated amplifier: the T-1800 (\$5900) from Allnic Audio Labs, the Korean manufacturer whose products and name are distinguished by the inclusion of nickel. As with all Allnic amplifiers, the T-1800's proprietary output transformers are wound on cores rich in that element, but these newest versions have another trick up their sleeves: Each of the multiple

Before my box of for-sale LPs went out the door, I triple-checked it for records I might actually love. I needn't have: It was love-free. To me, it was now just a box of polyvinyl chloride and paper and card stock. To someone else, it may be the stuff of dreams. My wife and I certainly hope so.

secondary windings of these "full engagement" output transformers is always in circuit, regardless of which output terminals are connected to the speakers. Allnic says that's important because an idle secondary winding is a devil's playground for the buildup of parasitic oscillations, which can then reflect back into and thus distort the signal in adjacent windings.

The T-1800 uses two EL34 tubes per channel in Ultralinear mode, to produce 40Wpc. Somewhat surprisingly, given the presence of dual-mono current meters on the front panel and dual-mono toggle switches on the top plate—the positions of the latter determine which of the two tubes per channel is connected to the meter—the T-1800's output section operates in auto-bias mode. According to designer

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Kang Su Park, the meters and switches are provided to help the user monitor tube wear. The output tubes are driven by one E180CC dual-triode tube per channel, and initial voltage gain for each channel is provided by half of a 12AY7 dual-triode tube. (Inasmuch as it doesn't provide line-level gain, the T-1800's preamp section is passive.) The 12AY7 is installed in one of Allnic's proprietary Absorb-gel isolation mounts; ordinary sockets are used for the other tubes.

Allnic's new integrated amp offers few user controls. On the rear panel is a hefty toggle switch for selecting between loudspeaker loads of 8 and 4 ohms. (The T-1800 can be ordered with 8 and 4 ohm or 16 and 8 ohm settings.) The front panel has only two controls: a pleasantly unyielding volume knob that addresses a 41-step silver-contact rotary attenuator switch, and a source-selection knob that provides electronic switching among five line-level inputs (four pairs of RCA jacks, one pair of XLRs). A compact remote handset duplicates all controls except for the T-1800's rocker-style on/off switch, and adds one control the front panel lacks: a soft-touch mute switch. The line-only Allnic T-1800 has no phono stage, balance control, or mono switch.

Miscellaneous details: AC rectification in the T-1800 is done with solid-state devices, and the amp's soft-start circuit gradually applies rail voltages only after the tube filaments have had ample warm-up time. The output section uses 6dB of global negative feedback, presumably to minimize distortion and maximize damping factor. Key specifications include a signal/noise ratio of 80dB, a frequency range of 20Hz–20kHz, and an input impedance of 10k ohms. And although it's not specified, the T-1800's overall gain seemed abundant.

But... a big bass drum!

Auditioned with a borrowed sample of the Shindo Laboratory Aurieges phono preamplifier (see Follow-Up on p.135 of this issue), the T-1800 was every inch a classic low-power EL34 amp, with just enough of a modern touch to extend its appeal beyond an exclusively vintage-centric fan base. As for the latter quality: Even before I knew that the Allnic's output stage employed negative feedback, its truly excellent low-frequency clarity and control were very much apparent. While listening to



How I would hate to wind up in a world in which fondness for push-pull EL34 amplifiers is met with the same scorn as love for Elton John records.

a recently acquired original mono copy of the Beatles' *Please Please Me* (LP, Parlophone PMC 1202), I noted that the T-1800 was more explicit than my Shindo Corton-Charlemagne monoblocks—also using two EL34 output tubes per channel, also operated in Ultralinear, but with no global feedback—in its portrayal of Paul McCartney's electric bass lines. And the T-1800 sounded tighter and more in control when reproducing the orchestral bass drum in the introduction of Elgar's *The Dream of Gerontius*, with tenor Nicolai Gedda, and Sir Adrian Boult conducting the New Philharmonia Orchestra and the London Philharmonic and John Aldis Choirs (LP, EMI SLS 987)—although the Shindo amps communicated a superior sense of power and gravitas, notwithstanding their lower output of 25Wpc.

Also in comparison with my Shindo separates, the Allnic integrated had the same abundance of natural textures and well-saturated timbral colors, but presented those qualities with a tonal balance tilted very slightly in the direction of the treble: The T-1800 didn't sound bright or even bright-*ish*, but at the top of the audioband the T-1800 had a bit more "air" than the Shindo combo, and more explicitly portrayed such things as room sounds,

microphone sounds, and tape splices. Both companies' amplifiers were above average at forgiving LP surface noises—an indication of their speed and imperturbability, not of any degree of dullness—and neither allowed hum or noise to intrude on my listening.

Apart from their just-plain-different tonal balances, there was one thing the Allnic integrated did consistently better than the Shindos, and one performance area in which it fell behind. The former was the T-1800's impressive openness and transparency—qualities that, for once, were *not* accompanied by losses of thick timbral colors and textures, or of body and substance in instruments and voices. At least once in past reviews I've drawn a parallel between the strengths I've just described and the effect one sees when using Adobe Photoshop's Levels control to "open up" the middle range of an image's input levels. (In publishing, that's often a useful way to prepare a photo for clear print reproduction, especially when dealing with a grade of paper that's easily over-inked.) Sonically, the effect is of hearing new information not by dint of brightness, but by removing acoustic shadows that were not heard as such on first listen. And so: Strings became steel strings (or nylon, or silk-and-steel, or brass-wound, or whatever), and voices became distinct vocal personalities, and murk became near or distant walls, and suchlike.

I wish I could add, "and sonic images became large or small"—but I can't, and that was perhaps the T-1800's only sonic shortcoming of note: The amp's sense of scale was very much lacking at the large end of things. Experience leads me to lay that at the doorstep of

global feedback, even while acknowledging the very real and perfectly worthy effects of same. It's a tradeoff. Some might think: Feedback eliminates distortion, so if it makes things sound less big, then bigness must be a distortion. In light of the fact that the audio arts have seen damn few technologies that, in reducing one form of distortion, didn't also increase another, howsoever slightly, I can't help seeing the foregoing as faulty reasoning; but even if it isn't, in this house, the badge of *distortion lover* has tended to elicit more smiles than shame.

Anyway, the T-1800's flaws are more than merely outweighed by its strengths: They are overwhelmed. And whereas I feel comfortable attributing the Allnic's shortcomings of scale to its dependence on global feedback, how can I explain such excellent touch and force from an integrated amp with a passive front end? Not only did the Allnic shine with up-tempo rock, it succeeded at the trickier job of allowing subtler music to sound dramatic and human and alive—as in the Eroica Quartet's fine recording of Mendelssohn's String Quartet 1 (CD, Harmonia Mundi HMU 907245).

The T-1800's flaws are more than merely outweighed by its strengths: They are overwhelmed.

The entire performance sounded so good, so consistently involving through the Allnic, that I feel guilty singling out this or that passage—although I'll point nonetheless to the stunning sense of touch in the pizzicato notes in the second movement, the startlingly good force in the tutti opening of the fourth movement, and the excellent sense of sheer musical drive throughout. And the entire work benefited from the Allnic's fine tonality: colorful and textured without being cloyingly, exaggeratedly sweet; open and explicit without being light or bright. Really: This disc through this amp made as good a case for CD playback as I've heard in a long time.

I suppose an EL34 amplifier is like a steak dinner, or a day spent fishing, or a drive in the country with the top down: To people who like those sorts

of things, every single one is pretty good—but in each category, a few are better than most. And *better than most* is how I feel about the Allnic Audio Labs T-1800 integrated amplifier: It pressed every one of my EL34-loving buttons and never let up. ■

Art Dudley (art.dudley@sorc.com) uses tube amplifiers to heat his listening room in wintery upstate New York.

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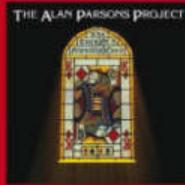


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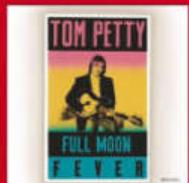
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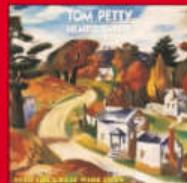
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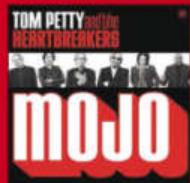
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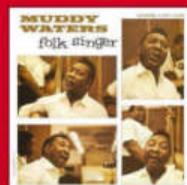
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AUDIO STREAMS

BY MICHAEL LAVORGNA

THIS ISSUE: Michael Lavorgna listens to AudioQuest's JitterBug, Schiit Audio's Wyrd, and UpTone Audio's USB Regen.

Bugged, Weird, and Regenerated

Unless something is broken, the bits from your computer will be delivered to your DAC intact; the claim behind three new products I recently listened through is that each can reduce noise *within* the DAC—noise that could otherwise corrupt the analog signal and thus make our music less musical. This notion is not based on audiophile woo-woo, but on the basic electronics of mixed-signal systems:¹ Although its input is digital data, a DAC's output is subject to all the noise problems of analog circuits.

We also need to keep in mind that a USB cable is responsible for transmitting not only your data, but also the 5V DC power leg supplied by the computer and used by

most DACs. Some DAC designers disregard this USB-based power, preferring to generate their own, cleaner power, in order to prevent noise from corrupting the analog signal in the DAC. Just in case your woo detector is flashing, remember: Many DACs also employ galvanic isolation to keep unwanted, incoming USB-based noise from getting past the USB receiver.

¹ According to *The Electronics Handbook, Second Edition*, Edited by Jerry C. Whitaker (CRC Press, 2005), in a mixed-signal system, “Noise at the input is converted into errors in the digital logic circuit; the data then picks up further errors as it is processed within the digital logic circuits, and when the conversion from the digital to the analog domain is finally made, these accumulated errors become noise once again at the digital logic circuit’s output.”

AUDIOQUEST JITTERBUG (\$49)

AudioQuest's full name for this is the JitterBug USB Power & Noise Filter, which tells us a bit more about what it does. (For a thorough description, read John Atkinson's review in the September 2015 issue.) In brief, the JitterBug is a small, passive device the size of a USB flash drive, with a USB Type-A female input at one end and a USB Type-A male plug at the other. AudioQuest claims that when you insert the JitterBug between your USB cable and computer, it “measurably reduces unwanted noise currents and parasitic resonances. It also reduces jitter and packet errors (in some cases, packet errors are completely eliminated).”

AudioQuest also recommends plugging an additional JitterBug into an unused USB port on the computer serving your music, and plugging extra ‘Bugs into unused ports on any other device—router, NAS, etc.—on the same network as that computer. (But the company advises plugging no more than two JitterBugs into any single device.) Plugging unused USB ports is said to serve two purposes: It keeps radiated electromagnetic and radio-frequency interference (EMI and RFI) from getting into open ports, and it keeps any noise generated by the USB bus itself from polluting the device.



SCHIIT AUDIO WYRD (\$99)

Schiit Audio claims that their Wyrd USB Power Isolator “isolates your USB DAC from the noisy USB power coming from your computer and provides a stable, precise [crystal] oscillator to repeat the USB 2.0 packets”—the latter being another way to say that the Schiit Audio Wyrd reclocks the incoming datastream. Why bother doing that? The answer has to do with a bit of hardware called the PHY (for physical layer, which is one of many elements within a data-transfer system): UpTone Audio (see below) tells us that DACs prefer a clean signal, since the more work that's assigned to



the USB PHY that resides in every computer-audio DAC, the more noise it generates. And that noise can find its way into your DAC's analog circuitry.

Because the Wyrd (pronounced *weird*) is to be inserted between your computer and DAC, you'll need two

USB links: one from your computer to the Wyrd's USB Type-B input, and one from the Wyrd's USB Type-A output to your DAC. The Wyrd's metal case, which measures 5" wide by 1.25" high by 3.5" deep, also houses a linear power supply, a rear-mounted

On/Off toggle switch, and two front-mounted white LEDs that indicate power and connection status. Like every Schiit product I've had and held, the Wyrd is solidly built, and its lack of plastic is especially welcome at the price.

UPTONE AUDIO USB REGEN (\$175)

UpTone Audio's USB Regen, like Schiit's Wyrd, is a powered, single-port USB 2.0 hub that takes the USB signal from your computer, *regenerates* (ie, reclocks) the data, provides cleaned-up 5V power from a built-in ultra-low noise regulator, and sends an impedance-matched signal to your DAC. The Regen is designed to sit as close to your DAC as possible; UpTone supplies a male/male USB A/B adapter—a solid, double-ended plug, which they recommend over the 6"-long male/male USB A/B cable they also provide.

At one end of the Regen's small (2.2" wide by 0.7" high by 1.8" deep) case of black-anodized aluminum is a USB Type-B port for connecting the USB cable from your computer, and a 5.5 by 2.1mm barrel jack for the



included supply. At the output end is a USB Type-A port for use with the adapter plug mentioned above. An amber-colored LED indicates the power status.

UpTone talks about four main is-

sues the Regen is designed to address: PHY noise, signal integrity, packet noise, and "frequency optimizing" of the power-delivery network. Again, each of these pertains to noise *inside the DAC* that could pollute the analog signal.

It's interesting to note that each

of these devices is designed to occupy a different place in your system: The JitterBug sits at the source, the Wyrd goes in between source and DAC, and the Regen cozies right up next to your DAC.



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The USB Regen's tidy circuit layout (left) and its input end (right).

Re-make/Re-model

I began my listening sessions by adding to my system four AudioQuest JitterBugs. I plugged one into my MacBook Pro (and used a Light Harmonic Light-speed USB cable to connect the 'Bug to my reference Auralic Vega DAC); another JitterBug in the MacBook's unused USB port, via a short USB cable (two 'Bugs can't fit into side-by-side ports); a third into an unused USB port on the NAS that stores my music library; and a fourth into my router.

The rest of the system comprised a Pass Labs INT-30A integrated amplifier and DeVore Fidelity The Nines speakers.

I left the JitterBugs in my system for a few weeks and simply enjoyed listening to all manner of music, as any normal person would. Then I removed all four 'Bugs and sat back down in my red Eames LCW chair to listen to 44.1kHz files from Jordi Savall and Hespèrion XXI's *Altro Follie*, 1500–1750 (Alia Vox 9844), a lovely

album of Renaissance music.

While I still enjoyed myself, as any normal person would, I noticed a number of changes to the sound of *Altro Follie*. Most notable was a loss of clarity. The dozen or so musicians of Hespèrion XXI weren't as distinctly separated-out in space as they were with the JitterBugs, and the overall space of the recording now seemed condensed and somewhat cluttered in comparison. These differences were at once easy to hear yet subtle: I wasn't experiencing the same degree of change I hear when I add, say, a new DAC.

I then added just one JitterBug between my MacBook Pro and Auralic

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Audio Perfection
Minneapolis, MN
612-866-0083

Wilson Audio
New Orleans, LA
504-888-8851

Vega DAC, and noted improvements: Bass definition was better, and the sound now had more weight overall, and was more relaxed and natural. These changes were also easy to hear. I found that I got the most benefit when I added a second 'Bug to the MacBook's unused USB port, which simply improved on the improvements already mentioned—not as dramatically as going from no 'Bugs to just one, but even these smaller-scale changes were easy to hear. Adding a third and a fourth 'Bug to my NAS and router offered very subtle sonic gains that I didn't feel were worth the extra \$98. One JitterBug = good. Two JitterBugs = better.

Next in line was the Schiit Wyrd, which I inserted in the same system (no 'Bugs). Again, the improvements were easy to hear: a less brittle, less "digital" sound, and increased weight and body. *Dysnomia* by Dawn of Midi—a trio of prepared piano, double bass, and drums (CD, Thirsty Ear THI 57206.2)—sounded more convincing, more present, more engaging. Following each of these amazing musicians in space and time was easier with the Wyrd in than out, and made for a more natural, more engaging experience.

The difference between the Wyrd and one JitterBug was subtle, but through the Schiit my music had a greater sense of weight and solidity. Funkadelic sounded even funkier.

Next up was the UpTone Audio Regen, installed in the same system. I listened for a few weeks with the Regen in, then took it out. Wow: *not* subtle.² Absent the Regen, it was as if my music had just come back from a week at weight-loss camp: Everything had less body and weight, and the overall spatial sound picture was reduced in every dimension. On a scale of sonic difference of 1 to 100, with the greatest difference possible in a hi-fi system's sound being 100, the Regen was a solid 15; the Wyrd and JitterBug were further down that scale.

The Regen also offered a less brittle, less "digital" sound. Subtle, beautiful music, such as Washington Phillips's *What Are They Doing in Heaven Today?* (44.1kHz file from Little Axe Records), sounded more heavenly, and it was easier to tell János Starker's cello from Yo-Yo Ma's—I'm talking improvements that made listening to music more enjoyable and more meaningful.

It's important to note that none of these devices changed the sonic

character of whatever DAC was in use; rather, they enhanced its qualities.

I also ran these comparisons with a LampizatOr Lite 7 tubed DSD DAC replacing the Auralic Vega, as well as in my desktop system: an Audeze Deckard DAC-headphone amp driving ADAM A3X speakers and Audeze LCD-X headphones. All of the changes I heard with each of the three USB devices through the Vega I also heard through the LampizatOr;

I wasn't experiencing the same degree of change I hear when I add, say, a new DAC.

while the JitterBug and Wyrd offered some improvement, the Regen consistently bettered both in terms of overall improvement. But on my desktop, the improvements gained with all three devices were less noticeable, especially in terms of spatial performance: My desktop setup is very much a nearfield listening experience, in which images and reproduced spaces are smaller and more intimate. The same held true for listening through headphones, as images were not reproduced in free space. With this in mind, if I were to pick for this system one such device, it would be a single JitterBug: The additional improvements offered by the other, more expensive devices didn't strike me as worth the extra cost.

I found that my favorite USB cable, the Light Harmonic Lightspeed, remained my favorite regardless of which USB device I used. I swapped in a few others, including AudioQuest's Diamond USB, and found that the

cable's character remained, even with a filtered, regenerated USB signal.

Combination of the Two

I know: crazy, right? If what we're talking about is reducing the amount of noise coming into a DAC, as well as reducing the amount of noise generated by the DAC itself by delivering a more stable and less error-prone signal—thus delivering less noise to the analog circuitry in the DAC—then perhaps adding more than one device will offer even better performance. At least in theory.

In practice I found that to be true. Using the AudioQuest JitterBug with either the UpTone Audio USB Regen or the Schiit Audio Wyrd offered additional improvements, including greater senses of clarity and ease, and a more natural sound. For my main system, the JitterBug-Regen pairing was the clear winner: I plan to use that combo from now on, for those times when I want to sit, listen, and enjoy music like any normal person, because they make that experience more enjoyable. If you already own a Wyrd and want to squeeze a bit more performance out of your DAC, try adding a JitterBug.

Bewitched, Bothered, and Bewildered

I find that the effects of cables and tweaks are most often system-dependent—but they are always user-dependent, owing to the listener's preferences and priorities. That said, I also find reviewing tweaks and cables to be a tad annoying: Obsessing over subtle changes is a sure way to kill my enjoyment of music. And I'm all about enjoyment.

Then there are those bits-are-bits guys (I have yet to meet any bits-are-bits gals) who'll tell you that this is all nonsense: after all, we're dealing with *digital* data. While I agree that bits are bits, if you've been paying attention, you know that's not what we're talking about here.

If you want to try only one of these USB devices, I recommend UpTone's USB Regen as the performance choice, and AudioQuest's JitterBug as the budget choice. If your big rig is very resolving and subtle improvements grab your attention, I recommend the Regen-JitterBug combo for a more bewitching experience. ■

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² See Kalman Robinson's comments on the effect of the USB Regen in this issue's "Music in the Round" (p.53) and my comments on the USB Regen in this issue's "Follow-Up" section (p.145).—John Atkinson

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ROTEL

MUSIC IN THE ROUND

BY KALMAN RUBINSON

On equalizing, upgrading, and regenerating

Outside of the listening I do for this column, I always audition, assess, and review components without using any equalization or room correction—primarily because I assume that most *Stereophile* readers listen in two-channel stereo, and that most aren't all that interested in EQ. Besides, two-channel is the tradition I come from, and my first instinct is to try to get at the essence of the individual component itself, without applying extraneous tools or accessories. John Atkinson's bench tests are based on the same philosophy.

Consequently, when I reviewed Monitor Audio's Silver 8 speakers for the January 2015 issue,¹ I set them up as a stereo pair with all EQ bypassed. I loved the way they sounded. However, I wondered if the acoustics of my room so influenced what I heard that my findings might not be applicable to other rooms, and therefore not as useful to readers.

So, hedging my bets, as is my wont, I waited to see JA's measurements before pulling the trigger on three Silver 8s, plus a pair of Silver 2s to use as surrounds, to comprise my new speaker system in Connecticut. They replaced a Paradigm Reference array of Studio/60 v3s and Studio/20 v2s that had been my reference speakers for that room for nearly a decade—and I was immediately delighted by the change. Most notable was the increase in clarity and detail throughout the audioband, particularly in the midrange and upper bass. The bigger, heavier Paradigm Studio/60s might have had the edge in bass extension and power, but the Monitor Silver 8s outdid them in bass resolution, and the surprisingly large-woofered Silver 2s seemed cut from the same cloth: The Monitor Silver quintet made me smile as I played through all my favorite multichannel recordings.

However, now that the Monitors were *my* speakers, it was time to induct them into the Music-in-the-Round clan by running Dirac Live EQ for file and streaming playback and Audyssey MultEQ XT32 for disc and TV sources.

By now, Dirac Live and Audyssey should be pretty familiar to my readers, so I'll skip the installation and setup procedures and tell you the results. Both of those systems showed a set of in-room measurements that looked very much like fig.4 in JA's "Measurements" for my review of the Monitor Silver 8—the speaker's "overall response on its tweeter axis at 50°, averaged across a 30° horizontal window and spliced at 300Hz to the complex sum of the individual nearfield responses." Like JA's graph, my measurements of the Silver 8's in-room frequency response revealed large and obvious room-mode irregularities below 200Hz, as well as problems between 1kHz and 4kHz. But in my Connecticut room, the positions of the speakers in the room changed the magnitude of a shallow dip in the range of the midrange—

THIS ISSUE: First listens to Marantz's AV8802A pre/pro and UpTone Audio's Regen, plus second listens to Monitor Audio's Silver 8 speaker and exaSound's e28 DAC.



tweeter crossover: It was deeper in the left front and center Silver 8s, as well as in the right surround Silver 2—but the slight dips in the right front Silver 8 and the left surround Silver 2 were identical to JA's fig.4.

Taking into account the two EQ systems' slightly different target curves, Dirac Live and Audyssey predicted almost identically smooth corrected responses—and indeed, the results sounded very much the same: the low end was now even tighter, cleaner, and more extended, and the correction of the midrange dip resulted in disarmingly natural reproductions of voices. Soundstages were also now more stable and continuous. Most important, however, was that the sound had not been transformed: The Monitor Silvers still sounded like the speakers I chose, but now I knew that they could sound even better in every way.

So what do you think? Does minimizing the effect of my room's idiosyncrasies with EQ provide useful information about a speaker's inherent performance, or do you think that EQ changes the performance unfairly?

1 See www.stereophile.com/content/monitor-audio-silver-8-loudspeaker.

MARANTZ AV8802A PREAMPLIFIER-PROCESSOR

For two years, I've been a pretty happy owner and user of Marantz's AV8801 preamplifier-processor, and didn't expect to see a replacement model any time soon—but the AV8802 was released almost a year ago. I resisted its siren song because its major new features were the inclusion of such new "immersive" digital signal processing (DSP) formats as Dolby's Atmos, Auro Technologies' Auro-3D, and, soon, DTS:X. I doubt that any significant audio-only recordings will ever be produced in any of these formats; whatever sonic value they have will probably be only for home theater. The AV8802 is also trumpeted as having "4K Ultra HD Video Processing; 4K 50/60Hz Pass-through; 4:4:4 Pure Color"; and, consequent to the retrofit-table upgrade to AV8802A status, HDCP 2.2 copy-prevention technology. I can't hear those trumpets. So I'd planned to sit out this upgrade, but was won over by a Marantz rep's statement that "we've made some nice changes to the audio path. Great theater preamp that is equally suited for audio..."

What caught my eye was that the

AV8801's analog outputs had been completely re-engineered for the AV8802—significant because Marantz's attention to their analog output stages had been what made the AV8801 so good for music. (*Stereophile* even included a photo of the AV8801's impressive 13-channel array of HDAMs, or hyper dynamic amplifier modules, in my review in the March 2013 issue.²) Fine-sounding though it is, the single-ended, discrete HDAM output in the AV8801 is buffered by an op-amp, and yet another op-amp is used to derive the inverted phase for the XLR output. What Marantz has done in the AV8802 is to banish the op-amps and use five discrete HDAMs per channel to drive both the RCA and XLR outputs.

Without formal announcement, Marantz made the change from AV8802 to AV8802A³ in order to include support for HDCP 2.2. The AV8802A looks very similar to the AV8801—the faceplate, even with its front door open, is identical. The rear panel is a bit different, mostly due to the greater numbers of output channels (13.2 vs the AV8801's 11.2) and HDMI inputs (7 vs 6, in addition

to the front HDMI input on both models), and to eliminate the Ethernet switch. Setup was somewhat more complex due to fundamental differences in how Atmos and Auro-3D define their channels, but this will affect only those who use those formats. Besides, Marantz has greatly improved their built-in GUI-based Setup Assistant, a feature that was always useful but is probably now essential.

I swapped out my AV8801 and set myself some simple goals. One was to determine if the AV8802A's analog outputs were sufficiently better to support Marantz's claim that the AV8802A can be taken seriously as an analog preamp. The other was to see what, if anything, Atmos and Auro-3D might do for someone who uses a surround system mostly for listening to music. Remember, there was a \$1000 price increase from the AV8801 to the AV8802, and close-out and used prices for the AV8801 have only widened the gap.

2 See www.stereophile.com/content/music-round-59.

3 The AV8802A costs \$3999. US owners of the AV8802 can get a free upgrade to "A" status by returning their units to Marantz or one its agents. See http://marantz.custhelp.com/app/answers/detail/a_id/3800/~/av8802-hdcp-2.2-upgrade.

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To hear how the AV8802A performed as a preamplifier, I fed its analog inputs with analog output from a miniDSP U-DAC8 (eight channels, RCA), a Korg DS-DAC-100m (stereo, RCA), and, briefly, a Benchmark DAC2 HGC (stereo, XLR). In almost every way, the AV8802a was an improvement over the AV8801. As I switched among sources with a wide range of recordings, from 16-bit/44.1kHz to 4xDSD, the Marantz reproduced music with sufficient resolution that I convinced myself that, most of the time, I could distinguish

among them. (Because the degree of difference dwindles as the data rate rises, I find the above is a useful regimen for assessing the purity of the downstream components.)

The AV8802A was also able to let me hear the subtle effects of some digital tweaks (see below). The best things I can say are that it didn't seem to impose any constraints on what it was fed, and that listening to some of my favorite tracks was wholly satisfying. My only quibble was that the AV8802A delivered the same gracious, rounded sound as Marantz's esteemed

Reference-series components—some may prefer a more prismatic clarity. That exact distinction was evident when I compared the sound from the Benchmark DAC via the Marantz's XLR inputs to the Benchmark going directly into the power amp. Although the difference was clear, the matter of my preference was a toss-up.

To dabble with Atmos or Auro-3D, I needed to add, at the very least, a pair of front height channels, but I wasn't going to punch holes in and thread wires through my ceiling for just a short

test. In response to similar consumer diffidence, some speaker makers have developed small Atmos-enabled speakers to be placed atop the main speakers and that fire, at an angle, toward the ceiling.⁴ In principle, their output will reflect at a precise angle to simulate a virtual height source at a point on the ceiling. In addition, there is a frequency-response correction in the electronics to simulate the head-related transfer function (HRTF) for an elevated source. It sounds complicated

⁴ See www.dolby.com/us/en/technologies/dolby-atmos/dolby-atmos-enabled-speaker-technology.pdf.

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but isn't. I prevailed on Peter Tribeman, of Atlantic Technology, to lend me a pair of his 44-DA Atmos-enable speakers, which I placed atop the front left and right Monitor Silver 8s, driven by a Parasound Zamp v.3 that I keep on hand. I also entirely relied on Marantz's Setup Assistant, and on Audyssey MultEQ XT32, to configure the AV8802a for Atmos and for Auro-3D.

Auro Technologies sent me a small stack of Blu-ray discs, while Dolby sent along only a single demo disc—so Atmos was at a disadvantage: The only music track on the Atmos sampler was "Bailando," a music video by Enrique Iglesias. The video cut repeatedly among multiple venues, indoors and outdoors, but the ambience presented never changed. Discounting the audio/video disassociation and my admitted lack of interest in the music, the sound was clean, direct, and of generous if inappropriate ambience. It didn't make much of a case for Atmos.

The Auro-3D music was more wide ranging, from the spacey-synth of Lichtmond's *3: Days of Eternity* (Blu-ray, Lichtmond LM022) and the indie-rock synths of Mando Dia's *Ælta* (Blu-ray, Black Hole 1623) to three Blu-ray discs from 2L Records: *Remote Galaxy*, music by Flint Beppe with Vladimir Ashkenazy conducting a very large Philharmonia Orchestra (2L 100); *Spes*, a collection of sacred choral music sung by the European a cappella group Cantus (2L



110); and Andre Arnesen's *Magnificat* for chorus and orchestra, with Anita Brevik conducting the Nidarosdomens

Jentekor and the Trondheim Soloists (2L 106). My take on all of these, including the Iglesias/Atmos, was that the addition of the height dimension opened up the sound of the recording venue without corrupting the imaging; nice, but not compelling. Still, I think that if we had a significant body of music in Atmos and/or Auro-3D, we would quickly adapt to this new spaciousness, and miss it when it wasn't there.

Almost the same can be said about what each of these technologies did with regular stereo and multichannel recordings. The effects were similar but more subtle. I preferred Auro-3D because it had less of an effect on tonal balance than did Dolby Surround upmixing, which also made the center channel more prominent. On the other hand, both Atmos

A daunting sight: the AV8802A's rear panel.

and Auro-3D were impressive with ambience-only

recordings in which they set up microphones in a rainforest or a busy city intersection, to immerse the listener in those aural scenes. Here, the expanded depictions were much more convincing than through just 5.1 channels. Similarly, the few movie clips worked very well. Maybe there's a future for these formats in home theater, but it will be a hard sell for music lovers.

The Marantz AV8802A does everything its predecessor did, and more. It adds support for Atmos and Auro-3D. Its Audyssey calibration is easily competitive and now supports the multiple-speaker configurations of the new immersive formats. Finally, the decidedly improved analog outputs benefit all audio functions, including analog multichannel pass-through. If your concern is primarily for music playback, can you do better spending \$1000 or so for a separate multichannel preamp? No way. It's easy to recommend the AV8802A, despite the bump in cost: It offers cutting-edge features and outstanding sound.



UPTONE AUDIO USB REGEN

In the last installment of "Music in the Round," I introduced the miniDSP U-DAC8 (\$299), an eight-channel USB DAC at $\frac{1}{10}$ the price of its nearest competitor—great news for anyone wanting to start playing multichannel files. Enhancing the sound with Dirac Live toned down the glint in the treble but didn't help the swimming instability in the soundstage. It was as if the balance was shifting under my feet (and before my ears)—the effect was most pronounced in the surround channels. Because it's obviously built to a price, the U-DAC8 would be a likely candidate for some of the many

devices offered to improve USB transmission or power supply; of the several such things I looked into, the first to arrive was UpTone Audio's USB Regen (\$175).

The Regen is basically a USB repeater that uses the digital datastream from your source to generate an entirely new USB signal to send to your DAC. Inside it is a USB hub chip supported by low-noise voltage regulators and a low-jitter clock. The Regen has its own power supply, which UpTone says is "the best spec'd and sounding 22 watt/7.5V/2.93A (overkill) tabletop (93 x 54 x 36mm) world-voltage-compatible SMPS we could find." The

5V from this supply feeds pin 1 of the output USB and replaces the 5V bus from the incoming USB. The Regen's USB plug is meant to be inserted into the DAC's input via a short ($\text{ca } 3"$), stiff, male-male adapter plug, to eliminate any variables due to a longer input USB cable. If you can't fit the Regen into your system that way, a 6" cable is also provided. UpTone says that the Regen should be transparent to your source. I inserted it between my Mac mini (running Windows 7 via Apple's Boot Camp) and the U-DAC8; setup required only a computer reboot and reselection of the U-DAC8 as the output.



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It was as if the Regen weren't there—until I began listening closely. The fundamental quality of the sound was better. All hints of the abiding brightness were eliminated and, as a result, the frequency balance was smooth and unaccented. The bass, with or without Dirac Live, was firmer. However, the biggest change was in image balance and stability. My sensitivity to such flaws increases with volume level, and I realized that I'd tended to play music at lower levels with the U-DAC8 to avoid being distracted by the surround-channel signals, whether

discrete or just ambient. For example, the 24-bit/96kHz, 5.1-channel FLAC file of Willie Nelson's *Night and Day* (DVD-A, Surround-By SBE-1001-9) has instruments discretely positioned at and between the speakers. Without the Regen, those instruments whose images appeared between speakers seemed more vaguely positioned; with the Regen, they were rock stable. Through the Regen, I listened to another favorite: Manfred Honeck and the Pittsburgh Symphony's recording of Dvorák's Symphony 8 (SACD/CD, Reference fresh! FR-710SACD).

Now I could turn up the volume to live-concert level without suffering any queasiness due to uncertain ambience.

If it could work the same magic with higher-priced DACs such as my exaSound e28, the UpTone USB Regen, at \$175, would qualify as a logical addition. But I don't yet know, because I lent the e28 to JA. A \$175 accessory for a \$299 DAC might seem inappropriate, but I think it's a bargain. Think of it as creating, for less than \$500, an eight-channel DAC whose sound is comparable to that of two-channel DACs for the same price or more.

MY DIY BATTERY POWER SUPPLY

In an e-conversation with exaSound's George Klissarov about galvanic isolation in his company's D/A converters, he told me that he used measurements done with battery power, so that the lower noise floor would reveal any influence of noise in the USB line. Despite Klissarov's comfort with the performance of the 12V/1670mA power supply that exaSound provides, the owner's manual says that a better power supply "may allow you to squeeze the last bit of performance from the e28 DAC." A number of external power supplies might work (one is on the way to me), but Klissarov's intimation that a battery would be the ideal power source hit my DIY button.

I don't do it myself much anymore, but I've been involved in DIY audio for most of my life and, like most DIYers, I often believe I can do things better and cheaper. Running a 12V battery is easy, but it has to be recharged; my solution is a 12V DC backup power supply that, when unplugged from the AC, runs the output on battery. I chose a Belkin Residential Gateway (RG) Battery Backup, model BU3DC001-12V Rev B (\$129.99 list price). Made to support an AT&T network service device for voice telephone service, it has a 12V, 7.2Ah sealed lead-acid battery. You can find them on eBay for under \$50; I bought mine at a flea market.

For basic use, all you need to do is change the Belkin's output connector: It comes with a standard barrel connector (5.5mm OD, 2.1mm ID), while the exaSound requires a 5.5/2.5 (aka N) connector. Snip the wire, solder on the new connector—make sure the + lead goes to the inner conductor—and you're done. Oh, not quite: Make sure



you flip the Mute switch on the Belkin to On, or you'll be subjected to piercing tones whenever you turn the AC On (charge) or Off (battery power).⁵

What did I gain? Mostly, satisfaction. When I changed from the exaSound power supply to the Belkin set to AC, I could hear no difference in noise level or sound quality. When I switched the Belkin to battery operation, things weren't so certain. Background noise in the absence of a signal was already so low that, in a sighted test, the quiet click of the Belkin's relay obscured my ability to choose. However, with battery power, the music seemed ever so slightly smoother and cleaner, with better distinction between music and ambience. I don't know if I could hear that difference with statistically significant consistency in a blind test, but I feel righteous about feeding my DAC the most wholesome juice diet possible. ■

The front (top) and rear (bottom) of the exaSound's recommendable e28 DAC, now battery powered via the DC jack.

⁵ I also added two nonessential gadgets: a three-digit LED voltmeter wired in parallel to the Belkin's output, to ensure that the battery charge was within usable range (see www.adafruit.com/products/575); and a remote-controlled AC switch (the Belkin has none). Inserting and removing the AC cord works, but it is a bother.

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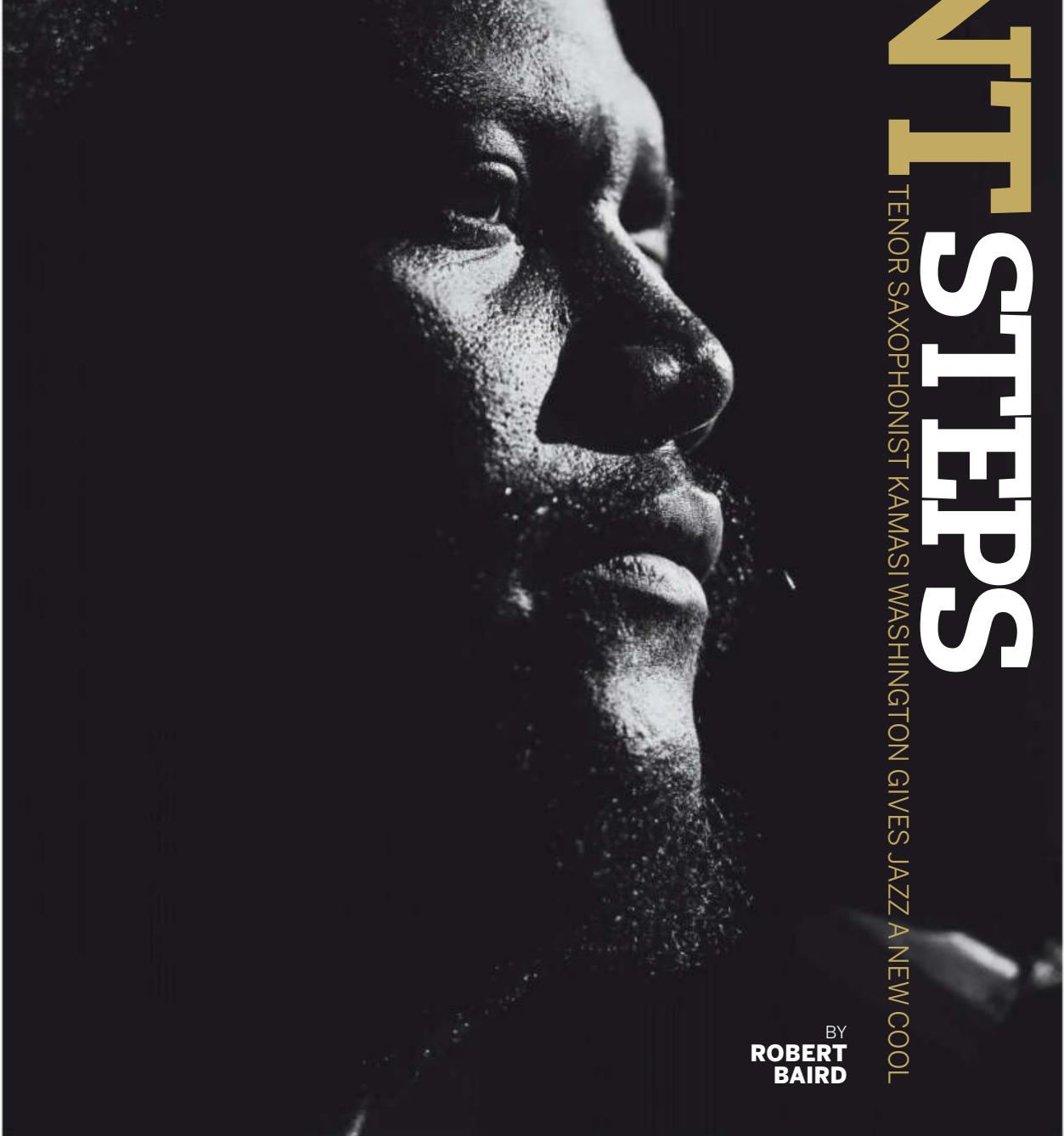
GIANT STEPS

TENOR SAXOPHONIST KAMASI WASHINGTON GIVES JAZZ A NEW COOL

BY
ROBERT BAIRD

TINSELTOWN. LA-LA LAND. SMELL-A. First, of course, there's the climate. No way to hate sunshine and ocean breezes. And if you were somehow able to erase all the people in Southern California, the land itself—rising from the blue Pacific to high desert and on to timbered, sometimes even snowy mountaintops—is gorgeous. Then, of course, there's the unusually attractive human flora and fauna roaming SoCal. How did Brian Wilson put it . . . ? "Dolls by a palm tree in the sand."

Although the residents of America's two great metropolises are supposed to detest each other's hometown, or at least that was the moral of *Annie Hall* (that, and needing the eggs), many New Yorkers savor Los Angeles for what it is, and vice versa. One musical oddity about L.A., however, is that it's never been a jazz town. Or so goes the most commonly told tale. One that ignores the Pacific Jazz and Dial labels not to mention Bird in Camarillo. But in general while there have been hair-metal bands in Hollywood, the 1960s rock flowering up on Sunset, and a particularly great Americana/roots bloom in the '80s (Blasters, X, Los Lobos), musicians and jazz fans alike have always complained that L.A. doesn't have the musicians or the venues for jazz.



"Lemme say that Los Angeles is so spread out, but there are little pockets," says Kamasi Washington, sitting on the edge of the bed in his room at the Cosmopolitan Hotel, in Manhattan's Tribeca neighborhood. The tenor saxophonist's debut album, *The Epic*, blends fusion and groove jazz with more traditional head-solo-head arrangements, and such sweet touches as a killer arrangement of the jazz standard "Cherokee." With an ensemble that varies between seven and eleven players, the 17 mostly instrumental jazz tracks on *The Epic* do feature wordless choral parts, string sections, and flashes of lyrics from vocalist Patrice Quinn. Loaded with ambition, what's truly new here is the surging energy, generous spirit, and outright joy that Washington and his cohorts bring to the music. Seen live, the band spends much of its time onstage smiling at each other and the audience.

Only hours before Washington's first-ever gig as a headliner in NYC, this 34-year-old mountain of a man is charming, funny, and remarkably untainted by the music business's sharper corners, or the pressures of playing his debut NYC gig in front of Gotham's notoriously snooty jazz fans and critics. Part of his ease comes from having played here many times as a sideman—and the fact that, in his mind, L.A. is a jazz town.

"When I first came to New York, I was 17, 18 years old, there were more musicians than we had in L.A.—a lot more. But I never heard anyone in NYC who could play better than our heroes at home. Isaac Smith. I never heard a trombone player anywhere on earth that could play like Isaac Smith. Or Zane Musa. All this stuff that Chris Potter is doing now? When I was 14, 15 years old, there was this guy—my age—doing all that altissimo stuff, playing superfast, and it was like, *man*. I never went anywhere or heard anyone who had more chops than Zane Musa."

Washington is part of a loose collective of musicians, most of whom grew up in south central and west L.A.—many also attended the Academy of Music at Hamilton High School—who now record for Brainfeeder, the indie record label owned and run by Flying Lotus (Steven Ellison), grandnephew of Alice and John Coltrane. In 2011, many of these friends and fellow musicians, all of whom are part of *The Epic*, spent an entire month, from 10am to



2am nearly every day, recording each other's material at Kingsize Soundlabs, in Echo Park.

"It was very in-house. We didn't have an engineer," Washington says. "I've got to give 90% of the credit on that to my drummer, Tony Austin; he engineered all my sessions. When we went to mix it, I mixed it with Benjamin Tierney. That was like . . . [laughs] we were in there with the microscope. It was like, 'Move that up 0.3dB. And that, 0.5, panning to the right.' [big smile] A lot of times, when you have strings, or music that has a lot of instruments in it, things get prioritized, so it's like, I want this to shine out way in front, and all this has got to go in the back. I didn't want that. I wanted everything to sound live, and you can hear what you want to hear, but you can hear everything. So we had to mix it, remix it; mix it, remix it. And then we bounced it all down to tape, and that was a whole 'nother vibe. All these things started popping out that weren't there before, and then we mastered it from the tape."

One of the first, and so far best albums to come out of that marathon is *The Epic*—the aspiring, inspiring, three-CD/LP debut album of a big, generous dude who may change the world's perception of jazz in Los Angeles all by himself . . . albeit, with a little help from his friends.

"I grew up with a collective of musicians, and we all worked a lot, with a lot of people—Chaka Khan, Snoop and Raphael Saadiq, Babyface, Stanley Clarke, George Duke, Harvey Mason—and we were always all spread out all over the place. But we made a point over all these years, that we'd come back and play together. We've always been hungry to play with each other. There's a common signature sound [of the group], but we each have our own

version of it. It's different branches from the same tree. Lotus asked me to make a record [from the Kingsize sessions] and said, 'Whatever you want to do.'"

Of the three terabytes of music—190 songs in all—recorded at Kingsize, Washington ended up with 45 of his own tunes, including many older songs that, he knew, "If I didn't record, I was gonna forget." While appearing on another widely acclaimed 2015 album, Kendrick Lamar's *To Pimp A Butterfly*, was a momentary distraction, Washington began to try and fashion a coherent album out of this mass of music. His first thought was to winnow it down to a single CD.

"Because we recorded so much every day, all the time, the music was like this [puts his hands in front of his face]. I couldn't even see it, couldn't hear it, didn't know what it was. A friend of mine said, 'Why don't you just start writing string and choir parts?' Cause inevitably that's gonna work better for some songs than it is for others."

His friend had a point, though when Washington was done writing the lush string and choral arrangements that help make *The Epic* such a sprawling, ambitious debut, he was no closer to cutting even one of his 17 tracks.

"When I went back to Lotus, I was like, 'This is the album. It's not one disc, it's three discs.' He just kinda laughed and said, 'Man, when you brought them 45 songs in here, I knew you were gonna do something like this.' The LP set of the *The Epic* (\$16.95) includes three black 180 gram vinyl records in sleeves with custom artwork, with all three housed in a rigid outer slipcase. Two 12" poster inserts featuring exclusive artwork by KC Woolf Haxton. A story adaptation and calligraphy by Kenturah Davis are also included. Masters were half-speed cut by Matt Colton at Alchemy Mastering.

Adding to Washington's difficulties in cutting down to a single disc's worth of music was the fact that *The Epic* tells a story (not really) that came to him in a dream. Or a series of dreams. Usually, this sort of . . . well . . . *revelation* spells nothing but trouble. The music world is littered with failed and half-baked concept records. For every *Tommy*, there are two or three others that are tangential, tenuous, and just plain terrible. Asked to give a brief synopsis of *The Epic*, the affable Washington smiles, knowing that what



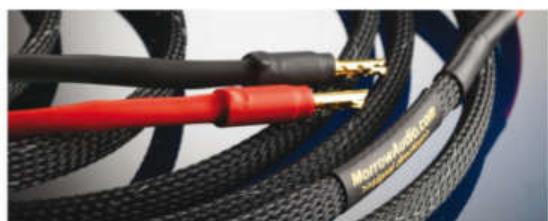
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he's about to say might sound a little . . . fantastical.

"There's a guy that guards this gate on the top of this mountain. That's all he does. He has no aspirations, he's eternal, you see him there for years and years. And there's a village of people there who live their lives to one day be able to challenge him. But no one's beaten him in hundreds of years. It's almost a ritual. It's all they really live for. One day, the guard comes out and there's four warriors there to challenge him. The first one is really fast, but he beats him anyway. The second one is really strong, but he beats him anyway. The third is fast and strong, but he beats him anyway. The fourth one is fast and strong like the third one, but there's something different about him. The guard sees something in this person that reminds him of himself. And then he gets this thought that he never had, like, 'Oh man, I could stop doing this, let this go.' So he lets the fourth guy kill him, and just as he's about to fall and about to get pulled into the gate, he wakes up. There's more, but . . .

"The album is about what you do as a young person to prepare yourself for what you want to be as an adult. Most of the biographies, and the stories that I know of people, is you make a plan for your life, but then life does what it does. All the guys I grew up with [*most are also now parts of the touring band for The Epic*] we were planning to be these jazz musicians, we were gonna take jazz . . . but in high school, I'm playing with Snoop, Thundercat [bassist Stephen Bruner] is playing

with Suicidal Tendencies, [keyboardist] Brandon [Coleman] is playing with Babyface, [bassist] Miles [Mosley] is playing with Korn, [keyboardist] Cameron [Graves] is playing with Wicked Wisdom, [trombonist] Ryan [Porter] is playing with Cameo. So we all ended up going in these directions other than jazz. I loved playing with Snoop. It was dope. It was a dream. But it wasn't what we were planning for in high school. The fact of the matter is that life is cool, it's beautiful, if you look at it with the right perspective."

What's most amazing about *The Epic*—after the, ummm, story, and the fact that it's a triple album that's selling briskly in 2015—is that it's drawing an audience that would rarely, if ever, listen to a jazz record, let alone go to see the music performed live. Its funky, major-key tilt and groove-heavy arrangements have been compared to *Ascension*-era Coltrane or a friendlier, less-assaultive version of Miles Davis's fusion period. On the opening night of Washington's NYC gig, along the Greenwich Village sidewalk in front of the Blue Note stretched a line of bearded hipsters, indie-rock fans, and girls from NYU—all there to catch the next big thing. The buzz on Washington and his band had clearly spread. Adding to the momentum are the facts that he has a friendly, funny stage presence, a rhythmic, accessible way with his tenor solos, and is generous as a leader, allowing everyone in the band to take extended solos.

"People who say they don't like jazz . . . that's a huge, broad statement," Kamasi says. "They do like jazz; they just

don't realize it. You say Joe Henderson, and they might not know Joe Henderson, but they like A Tribe Called Quest—and there's a bunch of Joe Henderson samples in A Tribe Called Quest's music.

"A lot modern jazz is not very personal. It feels very, like, distant. It makes people feel like they are alienated from jazz in general. And it makes musicians kind of curl up into this 'no one likes me' ball. Many jazz musicians are really saying, 'I'm just trying to capture what someone else did, or I am doing something where I do not care if you feel me. I am not trying to express myself to you.' The average person, their connection to music is based on some relatability. Music makes people feel like they are being communicated with, makes people feel like they are not alone. They want to feel something—feel that you're communicating something that they've felt before. That's why they like lyrics. It's a little more obvious. He's saying he got his heart broken by someone on a train, and I've got my heart broken by someone on a train, so I like this song.

"Jazz becomes so much about what you know, technically and historically—not about who you are or what you feel, not about cleansing yourself and letting go.

"Audiences, too, look at jazz like that: a music you listen to to get a perspective on history or on music theory. But as soon as you are putting yourself into it with them, they love it.

So far, *The Epic*, and the responses to it from audiences and critics alike, are proving that to be true. ■

Pangea Audio Introduces the \$29.95 AC-14 Power Cable and Something Unexpected Happens...



Jay Victor, Designer

audio cables for over a dozen high-end audio brands.

Jay designed the Pangea Audio AC-14 AC power cable specifically for source components like preamps, CD players, and DACs. Jay kept the price low – \$29.95/1M – by keeping the design elegantly simple and by using high-integrity molded connectors. Pangea Audio loved the AC-14 cable and introduced it to the market.

Four years ago, Pangea Audio decided to develop a low price power cable as an upgrade to the cheap power cables that came in the box with nearly all high-end audio gear. They asked veteran cable designer, Jay Victor, for help. Holder of more than forty patents and trademarks for audio gear, Jay Victor has designed high-end

Shortly after AC-14's introduction something unexpected happened. Audiophiles around the country began reporting the inexpensive AC-14 sounded better than other upgrade power cables costing five to ten times more. Word of AC-14's excellent performance quickly spread among audiophiles. Over the next few years, more than *twenty thousand* AC-14 cables were sold.

Pangea Audio's AC-14 was quickly followed by the massive seven-gauge AC-9 power cable for the high-current demands of power amplifiers, and then by other more advanced "SE" Pangea Audio cables. These newer cables featured better shielding and higher grades of Japanese-made copper for improved performance. The new cables sold extremely well. Then one day – without any warning – the Japanese company announced it was no longer making the high-end copper.

Pangea Audio began searching for a new high-grade replacement copper.

American Solution Courtesy of George Cardas



George Cardas
Cardas Audio

Years earlier, industry veteran, George Cardas, was unhappy with the quality of the copper available for his high-end cables. George decided to make his own copper conductors. His search eventually led him to a small conductor manufacturer in New England that was about to close. George's orders revived the factory, and it's still operating today.

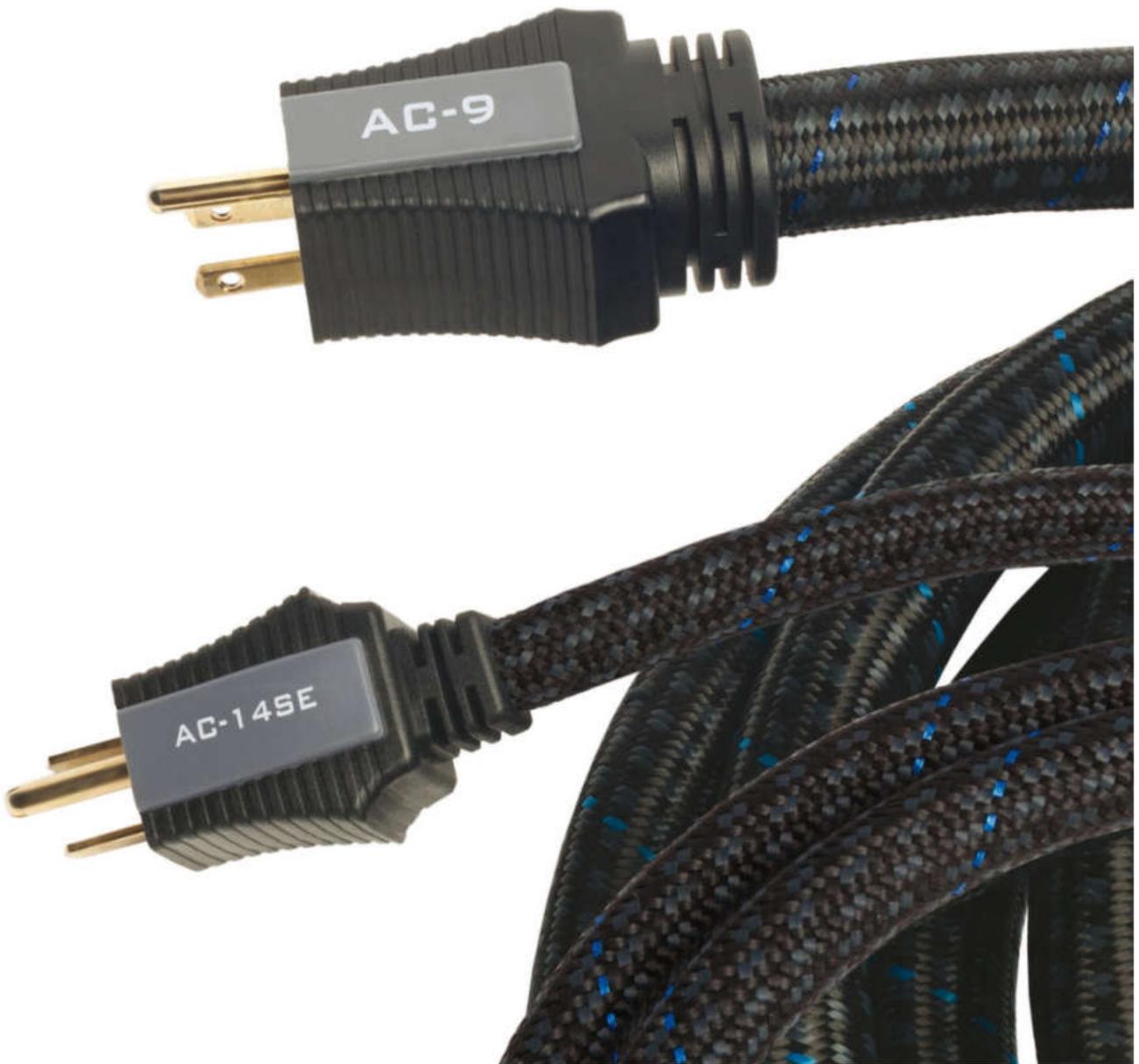
Pangea Audio contacted George and asked if he would be willing to sell them his premium copper. "Why not?" was George's reply and they struck a deal.

Mined in Arizona, the copper is shipped to New England, where it is melted down and then slowly drawn into conductors using a custom-build Argon gas-filled extrusion machine. Argon gas is used to ensure that no oxygen impurities get into George's copper. The Cardas Grade One Copper is then flown to the Far East, where each Pangea Audio cable is carefully hand made.

George's copper costs a bit more than the Japanese copper Pangea Audio had been using. One listen, however, and Pangea knew the difference was worth it!

George calls Cardas Grade One Copper "the most amazing audio conductor I have ever experienced. It is quite simply the best copper on the planet."

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MICHAEL FREMER

Musical Fidelity Nu-Vista 800

INTEGRATED AMPLIFIER

Nuvistors—miniature, small-signal, vacuum tubes made of metal and ceramic—were introduced by RCA in 1959, at the dawn of the transistor revolution. RCA used them throughout the 1960s in its New Vista line of television sets, mostly in the tuner section. But by the early 1970s, solid-state devices had all but replaced tubes, nuvistors included (with a few notable exceptions). Ampex based the electronics of its well-regarded, late-'60s MR-70 open-reel tape deck on nuvistors, which were also used in microphone preamplifiers—in both cases for their very low noise and reputation for reliability and long life. For a time, Conrad-Johnson used them as well. While nuvistors may seem exotic today, they're hardly rare. On eBay you can find for sale hundreds if not thousands of used and new-old stock (NOS) nuvistors, as well as nuvistor sockets, without which the tubes are less easy to implement. (But they can be, and often are, hard-wired into a circuit.)

Musical Fidelity, under the direction of owner and frustrated clarinetist Antony Michaelson, has for decades designed and manufactured its Nu-Vista line of nuvistor-based components: preamplifiers, power amplifiers, integrated amplifiers, and disc players. While MF hasn't cornered the market on the tiny tubes and sockets, it has amassed enough of them to continue designing and making new models based on the tube, and to support owners of their older models, should any nuvistors fail. In my experience, nuvistors rarely fail—they're said to provide 100,000 hours of use. I've owned numerous Nu-Vista models, including the curvaceous, dual-chassis 300 power amplifier and matching preamp, and no nuvistor in any of them has failed or gone noisy.

Musical Fidelity's new Nu-Vista 800 integrated amplifier (\$12,999) outputs 330Wpc into 8 ohms. It's hefty, solidly constructed, weighs 86 lbs, and is the first model from a new, young design team brought in after a company

shake-up. The 800 combines in one chassis a preamplifier with four JAN 7586 nuvistor triodes—two per channel—in a buffer configuration, and a dual-mono solid-state power amplifier based on surface-mount printed circuit boards and five pairs of bipolar output transistors per channel. Like all MF products these days, the Nu-Vista 800 is built in Taiwan.

The Nu-Vista 800's exterior design extends from the cosmetics of Musical Fidelity's former flagship amplifier, the Titan monoblock (a pair of which I also owned). But from every angle and vantage point, the Nu-Vista 800 is by far MF's best-looking product, ever. And while the older products were usually never less than well turned out, the 800's fit'n'finish and attention to detail set new standards for the company.

Details

The Nu-Vista 800 has five line-level inputs: four single-ended (RCA)—labeled CD, Aux 1/HT, Aux 2, and Tuner—and one balanced (XLR), which is labeled Balanced. Associated with the Aux 1/HT input is a rear-panel switch that bypasses the volume control.

Though the Nu-Vista 800 is an integrated amplifier, it has two sets of line-level outputs: one fixed-level, for use in analog recording or with a headphone amplifier, and one variable, for use in biamping or with a powered subwoofer. There are also two pairs per channel of generously spaced speaker terminals that can act as banana jacks or binding posts. The extra terminals aren't for a second pair of loudspeakers, but are included to aid in bi-wiring.

On the left of the front panel is a large Source selector knob; on the right is a matching Volume knob. Between them is a green LED screen that displays the selected source and the volume level, and below that is the IR receiver window. Directly below the Source knob are a small On/

SPECIFICATIONS

Description Hybrid integrated amplifier using both nuvistors and bipolar transistors. Tube complement: 4 JAN 7586. Inputs: 4 pairs unbalanced (RCA), 1 pair balanced (XLR). Line-level outputs: 1 pair fixed (RCA), 1 pair variable (RCA). Speaker connections: 2 pairs 4mm banana plug/binding posts. Output power: 330Wpc into 8 ohms

(25.2dBW). Output voltage: 52V RMS, 20Hz-20kHz; onset of clipping, 147V peak-peak. Damping factor: 200. THD+N (typical): <0.005%, 20Hz-20kHz. Signal/noise: >107dB, A-weighted. Input impedance: 40k ohms. Frequency response: 10Hz-30kHz, +0/-0.1dB. Power consumption: <0.5W (standby), 130W (on, idle), 900W (maximum).

Dimensions 18.8" (483mm) W by 7.3" (187mm) H by 19.9" (510mm) D. Weight: 85.8 lbs (39kg) net, 103.4 lbs (47kg) shipping.

Finishes Silver and black

Serial number of unit reviewed VU00119 (listening), VU00117 (measuring).

Price \$12,999. Approximate number of dealers: 8. Warranty: 2 years.

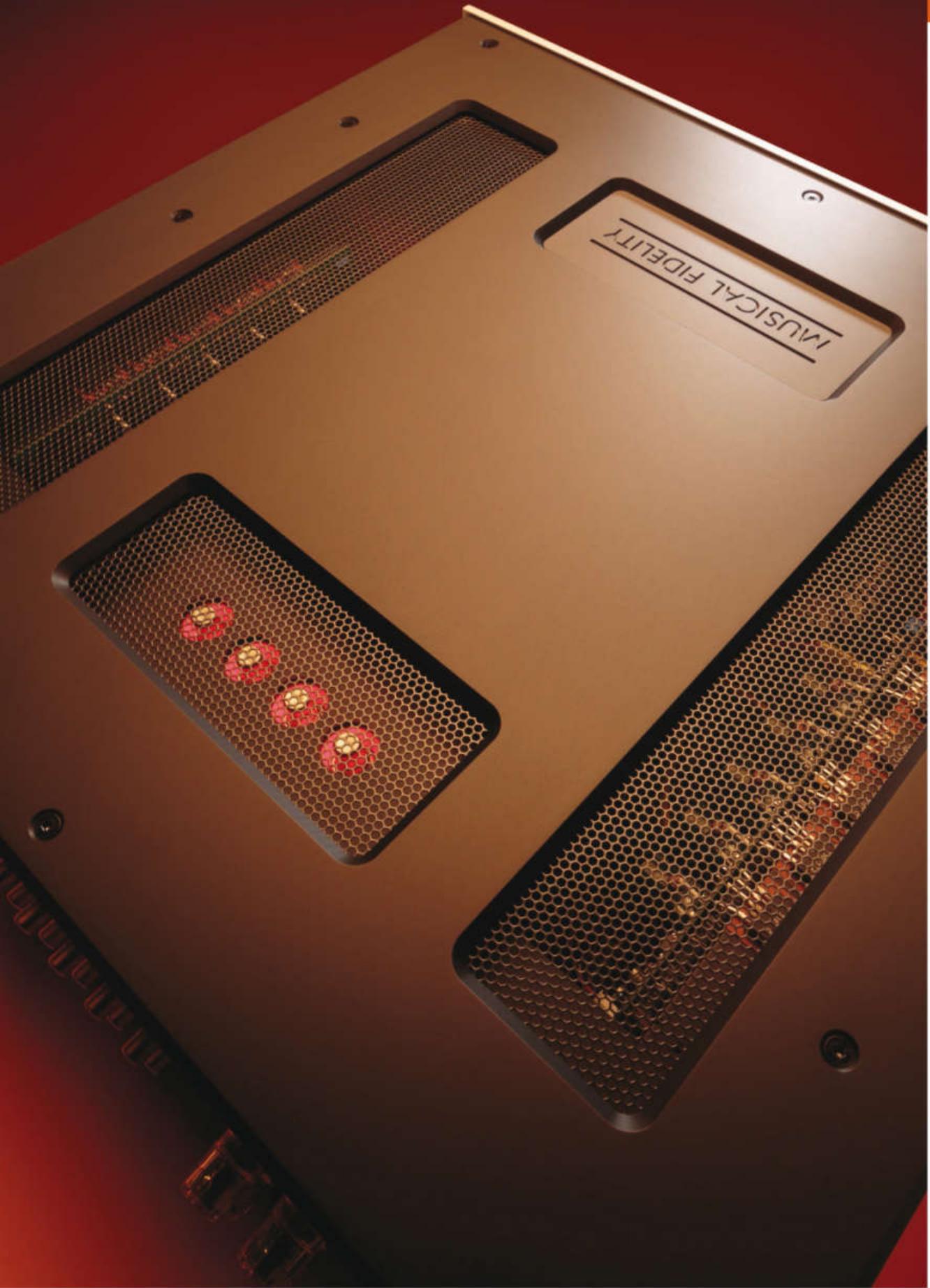
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Standby button and two LEDs: blue for On, amber for Standby. Directly below the Volume knob is a small Display button.

Most users will no doubt operate the Nu-Vista 800 using its remote control. Milled from aluminum and finished with a satin sheen, it's heavy in the hand, with buttons for Source, Volume Up/Down, and Mute. There's also a Display button—which doubles the one on the amp's front panel—for cycling through eight modes of illumination: a Musical Fidelity specialty. Not only the LED screen but also the Nu-Vista 800's cool undercarriage lighting and its illuminated nuvistor sockets—the latter visible through an opening on the top of the amp—can be powered up or down in virtually any combination. The Nu-Vista 800 can also be run without illumination.

Antony Michaelson visited me, bringing with him a set of graphs of the Nu-Vista 800's measured performance. If they match John Atkinson's measurements, they'll demonstrate an integrated amplifier of ultralow distortion and wide bandwidth. I was more interested in the sound.



The Nu-Vista 800 is by far MF's best-looking product, ever.

The Nu-Vista 800 can

Setup

Reviewing an integrated amplifier in my system presents logistical difficulties: Putting it on the rack with my source components and preamp requires speaker cables of greater than 20' length, which is longer than ideal. So in my listening room, the Nu-Vista 800 sat on four Stillpoints Ultra feet, atop my Shunyata Hydra Triton AC distributor, which itself sat atop a Black Diamond Racing platform. For digital source material, I used an 18' balanced pair of Wireworld Eclipse Platinum 7 interconnects to go from my Simaudio Moon Evolution 650D DAC-transport to the Nu-Vista 800's balanced inputs.

For vinyl, Antony Michaelson was okay with running my darTZeel NHB-18NS preamp into one of the Nu-Vista

MEASUREMENTS

I performed a full set of measurements on the Musical Fidelity Nu-Vista 800¹ using my Audio Precision SYS2722 system (see the January 2008 "As We See It," www.stereophile.com/content/measurements-maps-precision). As the amplifier is specified as having a maximum power output of 330Wpc into 8 ohms, I preconditioned it before the measurements by running it at one-third that power into 8 ohms for an hour. Following that period, the top panel was warm, at 99.5°F (37.5°C), and the

heatsinks hotter, at 121.9°F (49.9°C).

With the Nu-Vista 800's volume control set to "114.5," its maximum voltage gain at 1kHz into 8 ohms was typical for an integrated amplifier, at 42.1dB unbalanced and 42.3dB balanced. The volume control operated in accurate 0.5dB steps, with the error a negligible +0.13dB at a setting of "79.5"; ie, -35dB was actually -34.87dB. The Nu-Vista 800 preserved absolute polarity for both balanced and unbalanced inputs, its XLRs being wired with pin 2 hot. The unbalanced input impedance was 42k ohms at 20Hz and 1kHz, dropping to 17.5k ohms at 20kHz. The balanced

input impedance was 18k ohms across the audioband.

The output impedance, including 6' of speaker cable, was low in the bass and midrange, at 0.095 ohm, rising to 0.15 ohm at the top of the audioband. Consequently, the modulation of the Nu-Vista 800's frequency response due to the Ohm's law interaction between this impedance and the impedance of our standard simulated loudspeaker was also very low (fig.1, gray trace). The amplifier's response into resistive loads was flat in the audioband, with its output into 8 ohms down by 0.5dB at 20kHz and by 3dB at 70kHz (blue and red traces). This graph was taken with the volume control set to its maximum. commendably, both the very close channel balance and the overall response were preserved at lower settings of this control. The Nu-Vista 800 performed

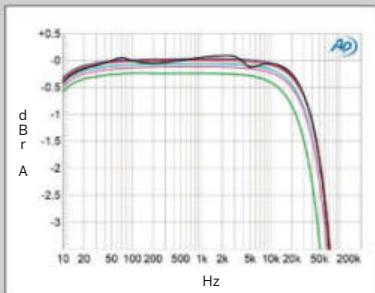


Fig.1 Musical Fidelity Nu-Vista 800, balanced frequency response at 2.83V into: simulated loudspeaker load (gray), 8 ohms (left channel blue, right red), 4 ohms (left cyan, right magenta), 2 ohms (green) (0.5dB/vertical div.).

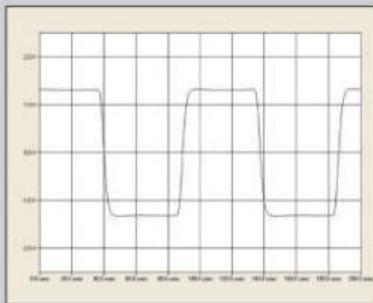


Fig.2 Musical Fidelity Nu-Vista 800, small-signal, 10kHz squarewave into 8 ohms.

1 When I began testing Michael Fremer's review sample of the Nu-Vista 800 (serial no. 00119), I broke it by inadvertently short-circuiting the speaker outputs at high power: As fate would have it, the output-stage devices sacrificed themselves to save the power-supply rail fuses. The measurements were therefore performed on a different sample (serial no. 00117).

800's pairs of unbalanced inputs, using a different, single-ended 18' pair of Wireworld Eclipse Platinum 7 interconnects. I used the volume controls of both the darTZeel pre and the Musical Fidelity integrated, both to optimize the vinyl setup and to allow easy, level-matched switching between the direct and preamp-supplemented connections, to assess any sonic differences between them.

Digital listening

Every time a manufacturer visits my listening room to help install his or her product, the same thing happens: The product is inserted in the system. I play some music. The sound pours forth. And the manufacturer utters a self-satisfied "Well! There you go!" And then I'm supposed to then say, "Damn! You're right! This is the best thing since French toast!"

One time, a cable manufacturer added to my system, one by one, various of his cable models. After each successive installation, we listened to the same recording. When several of his cables had been installed, he exclaimed, "Now it's starting to sound like music!"

"I've got news for you," I said. "It was sounding like music



The Nu-Vista's prettier-than-average rear.

While nuvistors may seem exotic today, they're hardly rare.

before your cables were installed. Please—I've been doing this for almost 30 years. Save that line for a kid, okay?"

Sure enough, when we first played music through the Nu-Vista 800, Michaelson gave me that old, familiar look of "Well! There you go!" While I always resist capitulating to any such assertion from a manufacturer, especially so early in the reviewing dance (when a manufacturer pushes too hard, it's like your partner stepping on your toes), what I heard

measurements, continued

well with a 10kHz squarewave (fig.2), with no overshoot or ringing.

Channel separation was superb below 1kHz, at >100dB, and still 72B at 20kHz. The wideband, unweighted signal/noise ratio, taken with an unbalanced input shorted but the volume control set to its maximum, was a little disappointing at 57.2dB left and 52.6dB right, both figures ref. 2.83V into 8 ohms. These figures improved by almost 12dB when the measurement bandwidth was restricted to the audioband, and were also sensitive to the arrangement of the ground connection

between the amplifier and the Audio Precision analyzer. Fig.3 reveals that the random components of the noise floor are higher in level than is usually found in integrated amplifiers, and that some odd harmonics of the AC supply frequency are present, perhaps due to magnetic interference from the two large toroidal power transformers.

With this higher-than-usual level of noise, the actual distortion in the THD+noise traces (figs. 4 and 5) doesn't rise above the noise until just below the actual onset of clipping. With continuous drive, the Nu-Vista 800 just failed to meet its specified

output power of 330W into 8 ohms (25.2dBW) with both channels driven at our usual definition of clipping: when the THD+N reaches 1%. Fig.4 indicates that the amplifier clips at 310Wpc into 8 ohms, a slight shortfall of 0.3dB, though it's fair to note that I don't hold the wall voltage constant in my testing. The supply voltage was 122V AC with the amplifier quiescent, but dropped to 119.1V AC when it was clipping into 8 ohms. Into 4 ohms with both channels driven, the Nu-Vista 800 clipped at 500Wpc (24dBW, fig.5). I didn't test its clipping power into 2 ohms, as Musical Fidelity's Antony Michaelson

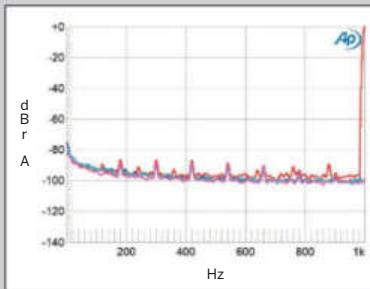


Fig.3 Musical Fidelity Nu-Vista 800, spectrum of 1kHz sinewave, DC-1kHz, at 1Wpc into 8 ohms (left channel blue, right red), and with input shorted (left cyan, right magenta) (linear frequency scale).

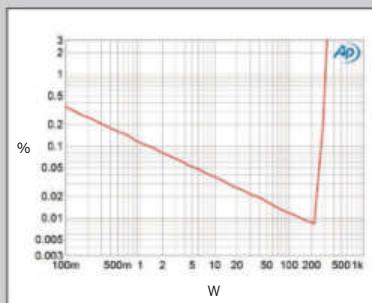


Fig.4 Musical Fidelity Nu-Vista 800, distortion (%) vs 1kHz continuous output power into 8 ohms.

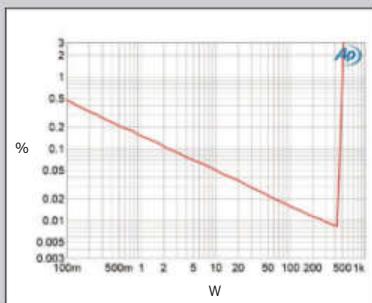


Fig.5 Musical Fidelity Nu-Vista 800, distortion (%) vs 1kHz continuous output power into 4 ohms.



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- Kalman Rubinson
Stereophile, Jan. 2015

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Silver series

from the start in this case forced me to yield.

There's no mistaking the velvety, delicate sound of a nuvistor front end. But unlike other Musical Fidelity Nu-Vista models I've reviewed and/or owned—in which the solid-state output stage acted almost as a dam to impede the smooth flow of tube sound—the Nu-Vista 800's power-amp section seemed to disappear, even as it exerted over the drivers of my Wilson Alexandria XLF speakers the strong control I expect from transistors. That was particularly true in the low end—but not at the expense of top-to-bottom continuity: There was an immediate and obvious sense of sonic "oneness," and of utter effortlessness and transparency. By *transparency* I don't mean an absence of sonic fingerprint—the Nu-Vista 800 sure had one, and it was very different from that of my reference



New vista: a glimpse inside the Nu-Vista 800 reveals the two transformers.

relaxed and suave, but not at all soggy or gauzy. It was more a matter of a shift of emphasis. There was a bit more of Jimmy Cobb's stick on the cymbal, and less sizzle. His snare, too, wasn't quite as crisp (though it was still sufficiently so)—but Cannonball Adderley's alto sax was oh, so round and

measurements, continued

had warned me that although they test power and stability, etc., into 2 ohms, I shouldn't expect to operate the amplifier for a prolonged period at full power into 2 ohms.

I tested how the percentage of THD+N changed with frequency at a level at which I hoped to be able to see the contribution of distortion instead of just noise: 20V (equivalent to 50W into 8 ohms, 100W into 4 ohms, and 200W into 2 ohms). Even so, fig.6 suggests that the THD lies beneath the noise floor below 5kHz or so into higher impedances. Though the distortion

into 4 and 8 ohms is very low overall, it does rise into 2 ohms, averaging 0.01% below 1kHz and reaching 0.1% above 10kHz. Just as I finished the 2-ohm measurement, the amplifier lived up to Michaelson's warning and muted its output. I had to wait until it had cooled down before I could continue the testing.

I haven't shown my usual THD+N waveform, as it was dominated by random noise. However, spectral analysis indicated that the distortion signature was primarily the subjectively innocuous second harmonic in the

left channel (fig.7, blue trace), but with an equal amount of third harmonic in the right channel (red). But with each harmonic at -100dB (0.001%) despite the high power level, these should not cause concern for listening to music, especially as intermodulation distortion is also extremely low (fig.8).

I feared for my back when I lifted the 86-lb Musical Fidelity Nu-Vista 800 onto my test bench. But when it comes to the measured performance of this handsomely styled integrated amplifier, there is nothing at all to worry about.—John Atkinson

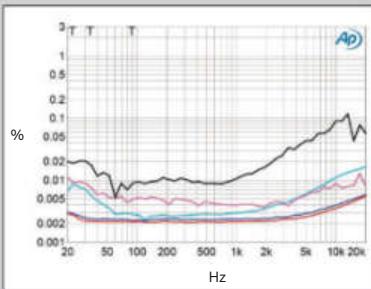


Fig.6 Musical Fidelity Nu-Vista 800, THD+N (%) vs frequency at 20V into: 8 ohms (left channel blue, right red), 4 ohms (left cyan, right magenta), 2 ohms (gray).

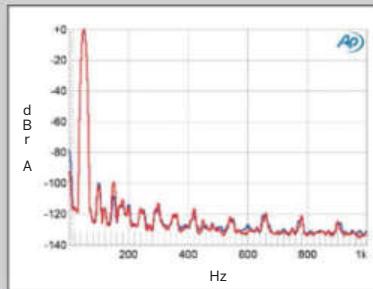


Fig.7 Musical Fidelity Nu-Vista 800, spectrum of 50Hz sinewave, DC-1kHz, at 100Wpc into 8 ohms (left channel blue, right red, linear frequency scale).

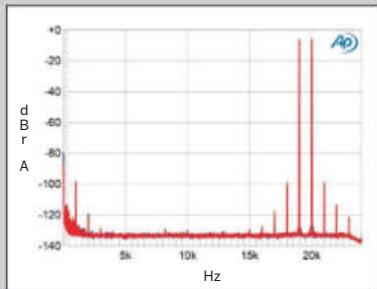


Fig.8 Musical Fidelity Nu-Vista 800, HF intermodulation spectrum, DC-24kHz, 19+20kHz at 100Wpc peak into 8 ohms (left channel blue, right red, linear frequency scale).

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juicy! I'm tempted to say that Miles sounded more as if he were playing a flugelhorn than a trumpet, but that would be an exaggeration.

CBS's 30th Street Studio, and the added reverb, produced an expansive and especially deep soundstage, but the overall environment was less airy and expansive than with my usual electronics; the sound of Paul Chambers's double bass favored tonal and textural detail over transients of string plucks. Nonetheless, the sound was 100% consistent from top to bottom: The sonic picture was complete, self-contained, and easy to sink into and thoroughly enjoy. Very analog.

After matching levels between my two different Nu-Vista 800 setups—with a line-level source driving its balanced inputs, and with the outputs of my darTZeel preamp driving its single-ended inputs—switching between them revealed, in the latter, a very slight diminution in bass definition (but not extension), and a barely perceptible softening of high-frequency transients (so slight as to probably not be noticeable to most listeners). While the latter would be beneficial to an overanalytical component that made transients too sharp and defined on top and overdamped on the bottom, they weren't at all what the Nu-Vista 800 needed. Therefore, I did all of my listening to digital recordings through the Nu-Vista 800's balanced input, with the DAC's analog outputs directly feeding the amplifier.

Harsh, bright CDs still sounded harsh and bright, but CDs that only marginally possessed those qualities were more pleasing in every way. If the Nu-Vista 800 added to the sound a bit of depth and spaciousness, that, too, benefited many CDs. And if the Musical Fidelity amp slightly softened high-frequency transients and slightly enriched the midrange, that will also be to the benefit of most CDs.

"S.O.S." from ABBA's *Gold: Greatest Hits* (CD, Polydor 5170075),¹ remained an ear-bleeder—but Jackson Browne's *Solo Acoustic Vol.1* (CD, Inside 15251) went from a bit hard and brittle through some amps to just right through the Nu-Vista 800. I went through the recordings stored on my Meridian Sooloos server and what I've currently got on Roon, trying to predict which discs would sound better through the Nu-Vista and which couldn't be helped. More often than not, I was right: CDs with a touch of hard edge and brightness were suitably softened and corrected; those that were hopelessly hard and bright remained so.

On the other hand, CDs that I thought were well balanced to begin with—such as *What's It All About*, Pat Metheny's solo album on baritone guitar (Nonesuch 527912)—were a bit too soft on bottom, and transients weren't as sharply expressed as they could and should have been. The slightly more mellow and expressive-sounding two-LP version (Nonesuch 528173) sounded closer to the CD version than it should have.

In some ways, the Nu-Vista 800 reminded me of the far more expensive Siltech SAGA power amplifier (\$75,000, not including preamplifier).² The SAGA is also a tube-transistor hybrid, with separate housings for its tubed, battery-powered voltage amplifier and its solid-state current amplifier, the latter using an LED plus solar panel to generate and keep absolutely constant the bias current by removing it



The Nu-Vista 800 was fully expressing the music's essence.

from the grid.

Though the SAGA's transient performance and speed of attack were faster—and its transparency greater—than the Nu-Vista 800's, I wrote in my review of the Siltech that "I didn't 'hear' the tubes as such, but they seemed to provide the cushion that allowed the SAGA's solid-state output to speed along without paying a price in over-analytical sound that was deficient harmonically." In that review's conclusion, I wrote: "the SAGA is not the last word in bass extension and muscularity, or overall speed of transient attack. . . . However, I have never heard digital sources sound as convincingly real, as fully fleshed out, as free of artifacts, or as genuinely *enjoyable* as they did through the Siltech SAGA."

All of which I found equally true of the Nu-Vista 800, except that it could be argued that the Musical Fidelity's sound was more coherent from top to bottom. In fact, I think I've just made that argument. I'm sticking with it.

Analog listening

Recently, my record shelves had become too tightly packed, and I had to move everything stored on the bottom shelves of my rack onto shelves in another room. In the process, I came upon many LPs I'd never played, including *The Blues... A Real Summit Meeting* (2 LPs, Buddah BDS-5144-2), which someone at Buddah Records, in New York City, had handed me in 1973. I'm ashamed to admit it: *42 years on the shelf, unplayed*. Mobile Fidelity Sound Lab had reissued the LP, but here was the original, recorded at Philharmonic Hall (soon to be Avery Fisher Hall, now soon to be David Geffen Hall) by Jim Reeves,³ using the Record Plant's remote truck, and mastered at Bell Sound by Sam Feldman.

So I cleaned the two LPs and finally played them, having had no previous experience of their sound. How *did* they sound? First, the recording is *exceptional*, though so closely miked it almost sounds like a studio set. But right in my room, between the speakers, were the midband-rich voices

1 Yes, I admit it: I like ABBA, I like the Bee Gees, I have an old-man crush on Taylor Swift—and yes, JA, I like the Smiths, too!

2 See my review in the October 2014 issue: www.stereophile.com/content/siltech-saga-power-amplifier.

3 To see some amazing photos of the goings-on at the 30th Street Studios, visit Reeves's website: www.reevesaudio.com/vintagesessions.html.

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of Big Mama Thornton, Jay McShann, Eddie “Cleanhead” Vinson, Muddy Waters, B.B. King, Arthur “Big Boy” Crudup, and Clarence “Gatemouth” Brown. Through the Nu-Vista, the bass lines were like those on *Kind of Blue*: harmonically and texturally rich, and tuneful. The midrange sounded

creamy and full, which gave voices a “there live” believability. The album’s final track is B.B. King performing “Outside Help”—and if you want to hear more harmonic fullness from King’s guitar, Lucille, and the sound and feel of him picking notes on her, you’re asking for too much. At one point, he hits a string hard—the dynamic jump delivered a shot of adrenalin.

I sat through the entire set feeling that the Nu-Vista 800 was fully expressing the music’s essence—if it wasn’t extracting every possible bit of detail, I didn’t care. Audio equipment either draws you in to the music or it pushes you out. I think that, ultimately, after all the analysis of the sound of audio gear, we base our choices of equipment on whether it draws us in or pushes us out. What produces those senses of being drawn in or pushed out is the sound’s overall seamlessness or lack thereof. In terms of tone quality, texture, transient attack, sustain, and decay, the Nu-Vista painted a consistent, coherent picture. It was tonally and texturally on the somewhat rich side, transient attacks were slightly softened, sustains were generous, and its *very* low noise level meant that decays were equally long-lived. In short, the Nu-Vista 800 drew me *in*. That was what mattered.

Conclusion

Charles Mingus was famous for saying, about every album he released, “This is the best album I’ve ever made.” Musical Fidelity’s Antony Michaelson has his own tongue-in-cheek version of the same trait: He tends to say, on the launch of each of his statement products, “This is the best I have ever manufactured.” Of course that can’t always be the case—but this time out, overall, I’d say that it’s true of the Nu-Vista 800.

The Nu-Vista 800 is a powerful, technically capable integrated amplifier that I’m sure will measure well—like all Musical Fidelity products. But instead of an assault on the state of the art designed to wring every last detail from every recording, regardless of the potentially negative consequences, the Nu-Vista 800 is more an easy-to-listen-to product aimed at the music lover. That is neither an audiophile

The sound was 100% consistent from top to bottom.

ASSOCIATED EQUIPMENT

Analog Sources Continuum Audio Labs Caliburn turntable, Cobra tonearm, Castellon stand; TechDAS Air Force Two turntable; Graham Engineering Phantom Elite, Kuzma 4Point, Swedish Analog Technologies tonearms; Air-Tight PC-1 Magnum Opus, Fuuga, Lyra Atlas & Etna, Miyajima Labs Zero (mono) & Madake, Ortofon Anna cartridges.

Digital Sources Lynx Hilo A/D-D/A converter; Meridian Sooloos Digital Media System; Simaudio Moon Evolution 650D CD transport-DAC; Pure Vinyl, VinylStudio LP-ripping software.

Preamplification Ypsilon Electronics MC-10L & MC-16L step-up transformers; darTZeel NHB-18NS, Luminous Audio Technology Arion, Ypsilon Electronics VPS-100 preamplifiers.

Power Amplifiers darTZeel NHB 458 monoblocks.

Loudspeakers Wilson Audio Specialties Alexandria XLF.

Cables Interconnect: Snake River Audio Boomslang S/PDIF, Stealth Sakra & Indra, TARA Labs Zero Evolution & Zero, Teresonic Clarison Gold, Wireworld Platinum Eclipse. Speaker: TARA Labs Omega Evolution SP, Wireworld Platinum Eclipse 7. AC: Shunyata Research Alpha Analog HC, Alpha Digital, Zi Tron Alpha Analog.

Accessories Shunyata Research Hydra Triton & Typhon power conditioners (2 sets); Oyaide AC wall box & receptacles; HRS Signature SXR, Stillpoints ESS, Finite Elemente Pagode stands; Symposium Rollerblocks & Ultra platform; ASC Tube Traps; RPG BAD, Skyline, Abffusor panels; Stillpoints Aperture Room panels; Synergistic Research UEF products (various); Audiodharma Cable Cooker; Furutech, Stein Audio demagnetizers; Furutech deStat static-charge remover; Loricraft PRC4 Deluxe, Audiodesksysteme Gläss record-cleaning machines.—Michael Fremer

putdown nor damning with faint praise: After all, it’s possible to be an intense lover of music *and* someone who loves to wring from every recording every last detail, regardless of the consequences. But I suspect Antony Michaelson has had his fill of audiophiles on a quest for the ultimate in detail retrieval: I think he’s more interested in reaching lovers of music by making things that sound *really* good.

Not just things, but *beautiful* things. Over the years, some Musical Fidelity components have fallen short in that department. For instance, the bolts that held together the very expensive Titan monoblocks weren’t made of stainless steel, and they quickly tarnished. But the Nu-Vista 800’s fit’n’finish—down to every last visible bolt, down to everything visible through the ventilation screen—make it by far the most impressive-looking and -feeling Musical Fidelity product ever. The front panel is exquisitely machined, and reflects light “just so.” The closer I looked, the more I liked.

It’s easy to imagine a customer walking into an audio shop, being stopped short by the Nu-Vista 800, and saying, “Let me hear *that*.” It’s even easier to imagine that customer reacting as I did, at first listen and every listen thereafter. At \$12,999, this is not an inexpensive product, but it’s one that will bring a CD collection to new life and, when matched with the right associated analog gear, do the same with LPs. (I’d go solid-state phono amplification, with a lean, fast cartridge.) That imaginary customer could take home a Nu-Vista 800 and confidently say, “I’m done.” ■



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Hello. My name is Jim Smith. You may know me from a few years ago when I imported Avant-garde Acoustic loudspeakers, as well as Audiopax and Zanden. And you may have read my booklet, *31 Secrets to Better Sound*. Over 15,000 audiophiles received it. Hundreds wrote or called to thank me for the big improvement in their systems.

During that time, I visited numerous audiophiles and listened to their systems. In all of those visits, I never encountered *one system* that was performing anywhere near its potential! I know that there must be some, but I certainly never encountered any.

Is it OK to tell the truth?

Few of those systems were performing at even *half* of the performance of which they were capable! And yet, the common denominator among their owners was the question, "What about upgrading to the (current rave) XYZ component?" Clearly, they thought that buying a new component—amplifier, CD player, etc.—was the path to audio nirvana.

But their priorities were misplaced. There was no need to spend another dime on components until they had gotten their system optimized to be able to "play the room."

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KALMAN RUBINSON

Benchmark Media Systems AHB2

POWER AMPLIFIER

I first saw Benchmark's AHB2 stereo power amplifier at the 2013 Convention of the Audio Engineering Society, in New York City. On silent display in Benchmark's booth on the convention floor, its compact size and comprehensive features made the amp immediately attractive, and the design was described as a departure from traditional analog and digital amplifiers¹ (more on that later). It was also explained to me that the AHB2 was based on designs by Benchmark's founder, Allen H. Burdick (whose initials it bears). By the time of Burdick's retirement, in 2006, Benchmark didn't yet offer a power amplifier, but the company used a prototype based on his work to evaluate their new digital products, and that amp was soon developed as a commercial product; Burdick died just weeks before the AHB2, now named in his honor, was shown at the 2013 AES convention.

Out of technical curiosity and my own interest as a consumer, I wanted an AHB2 right away, but the model had yet to be launched. Fast-forward to 2015, when I found myself inves-



The THX AAA system combines an intentionally low-bias, class-AB output section with an auxiliary low-power, feed-forward amplifier.

tigating lighter power amps—I can no longer lift my 155-lb McIntosh MC303, or easily maneuver my 65-lb Parasound A31. I didn't recall how well the Benchmark AHB2 might suit me, until the amp began making a buzz (only figuratively!); happily, when I asked John Atkinson if I might review the Benchmark, he told me that he already had one that he could drop off.

Description

When I unpacked the AHB2, I was impressed with its small size and weight: the non-rack-mount version is 11.04" wide by 3.84" high by 9.34" deep and weighs only 12.5 lbs.

1 For a full description of the design and engineering technology packed into the AHB2, see <http://benchmarkmedia.com/blogs/news/14680625-the-ahb2-a-radical-approach-to-audio-power-amplification>.

SPECIFICATIONS

Description Two-channel, solid-state power amplifier. **Inputs:** 1 pair balanced, line-level (XLR). **Outputs:** 1 pair multiway binding posts, 1 pair Neutrik NL4 speaker outputs (channels 1 & 2), 1 Neutrik NL4 speaker output (for bridged-mono operation). **Rear-panel controls:** two 12V trigger inputs/outputs, three-position Input Sensitivity Switch, two-position Bridge Mode Switch. **Front-panel controls:** Power Switch, Power Indicator, Clip, Temperature, and Mute Indicators for each channel.

Output power, 1kHz <0.0001% THD+N, both channels driven: 100W into 8 ohms (20dBW), 130W into 6 ohms (19.4dBW), 190W into 4 ohms (19.8dBW), 240W into 3 ohms (19dBW). **Output power, bridged-mono mode:** 200W into 16 ohms (26dBW), 380W into 8 ohms (25.8dBW), 480W into 6 ohms (25dBW). **Output current:** 18 amps/channel, both channels driven, 18 amps shut-down threshold. **Input sensitivity (selectable):** 9.8V RMS/22dBu, 4V RMS/14.2dBu, 2V

RMS/8.2dBu. **Input impedance:** 50k ohms. **THD+noise (1kHz, 80kHz LPF):** <-118dB (<-0.00013%). **Frequency response:** better than 0.1Hz-200kHz, +0/-3dB. **Signal/noise (A-weighted):** 132dB (stereo), 135dB (mono). **Damping factor (8 ohms):** 350 at 20Hz, 254 at 1kHz, 34 at 20kHz, 7 at 200kHz. **Dimensions (including feet and connectors):** 11.04" (283mm) W by 3.84" (98mm) H by 9.34" (240mm) D. **Weight:** 12.5 lbs net (5.7kg), 16 lbs (7.3kg) shipping. **Rack-mount version:** 19" (487mm)

W by 3.88" (99mm) H by 10.62" (272mm) D. **Weight:** 13.5 lbs net (6.1kg), 17 lbs (7.7kg) shipping.

Serial number of unit reviewed

14440108-0.

Price \$2995. Approximate

number of dealers: 35.

Warranty: 5 years.

Manufacturer Benchmark

Media Systems, Inc.,

203 E. Hampton Place,

Suite 2, Syracuse, NY

13206-1633.

Tel: (800) 262-4675,

(315) 437-6300.

Fax: (315) 437-8119. Web:

www.benchmarkmedia.com.



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I was also impressed with a seriousness of design apparent in its features: The fully balanced AHB2 has, on its rear panel, only XLR jacks for signal input, plus a toggle switch that allows the user to select among three input-sensitivity levels. For output, the Benchmark amp offers a choice of traditional multiway connectors or a stereo pair of Neutrik NL4 sockets. A third Neutrik NL4 is provided for use when the amp is in bridged mode, which is selected with a second toggle switch. On the front panel is a pushbutton on/off switch plus dual-mono indicator lights that indicate clipping, excess temperature, and the muting state the amp enters during power-up (or, presumably more rarely, when in fault-detection mode). These features, along with the detailed manual and specs included with the amp, suggest that the AHB2's target market is the audio professional or the recording studio.

Also packed in the box was a slick, gatefold brochure from THX Ltd., which developed the amplifier's patented Achromatic Audio Amplifier (AAA) technology. The THX

AAA system combines an intentionally low-bias, class-AB output section with an auxiliary low-power, feed-forward amplifier; the latter drives the former with a correction signal that's claimed to eliminate distortion before it reaches the loudspeaker outputs. Tied to the AAA technology is a system of class-H power-supply rails that track power demands in order to increase amplifier efficiency without the penalty of added distortion; the power supply itself is a regulated switch-mode type that uses resonant switching, claimed by Benchmark to reduce noise.

Apparently, the brief history I'd been told at the 2013 AES Convention was only half the story. To paraphrase Benchmark's John Siau, from a recent e-mail exchange:

The AHB2 was a team effort between Benchmark and THX. They were very excited about the performance that they were getting from a prototype that used the new THX-AAA technology. They sent the prototype, and we sent them one of our 35W DA101 power-amplifier cards. Our

MEASUREMENTS

I performed a full set of measurements on two samples of the Benchmark AHB2 (serial nos. 14440108-0 and 14440111-0), using my Audio Precision SYS2722 system (see the January 2008 "As We See It," www.stereophile.com/content/measurements-maps-precision), and the amplifier's binding posts rather than its Neutrik terminals. As the AHB2 is specified as having a maximum power output of 100Wpc into 8 ohms, I preconditioned it before measuring it by running it at one-third that power into 8 ohms for an hour. Following that period, the top panel was warm, at 106.7°F (41.5°C), though the heatsinks were hotter, of course, at 117.3°F (47.4°C). The percentage of THD+noise at this power level was an extremely low 0.0005% with the AHB2 fully warm.

I had first learned about the power-supply and amplifier topology used in the AHB2 at the 2012 Consumer

Electronics Show.¹ Laurie Fincham of THX had explained to me that the innovative technology, developed by a team including Fincham, Andrew Mason, and Owen Jones (twin brother of noted speaker designer Andrew Jones), offered both extremely efficient conversion of AC power from the wall into DC power to feed to the amplifier circuit and extraordinarily low distortion. (An interview Scott Wilkinson conducted with Fincham about this technology can be seen at Scott's website, "Home Theater Geeks."²) In a presentation at the 2013 Rocky Mountain Audio Fest,³ Fincham and Benchmark's John Siau explained how the AHB2 used the THX technology to produce a 100W amplifier with sufficient dynamic range—*ie*, very low noise and distortion compared with the maximum signal voltage—to preserve the theoretical dynamic range of high-resolution recordings.

Each 1-bit increase in bit depth is equivalent to lowering the noise floor

by 6.02dB. The 16-bit Compact Disc therefore has a noise floor at -96dB and change, hence cannot resolve information lower than -96dB. (This is without noiseshaping and dither.) By analogy, an amplifier with a maximum signal/noise ratio of 96dB would, if its noise floor were random, have 16-bit resolution. The Benchmark amplifier has a claimed S/N ratio "approaching 130dB," which, at 6.02dB per bit, is equivalent to more than 21-bit resolution. This is superb performance, given that the practical limit of DAC resolution is currently also close to 21 bits. Conventionally, it is assumed that the measurement system used to test a product is much better than the device under test.

However, the Benchmark amplifier's

1 See www.stereophile.com/content/high-efficiency-non-switching-amp-thx.

2 See <https://twit.tv/shows/home-theater-geeks/episodes/242>.

3 See www.stereophile.com/content/benchmark-debuts-high-dynamic-range-amplifier.

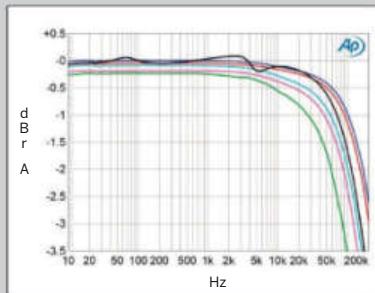


Fig.1 Benchmark AHB2, frequency response at 2.83V into: simulated loudspeaker load (gray), 8 ohms (left channel blue, right red), 4 ohms (left cyan, right magenta), 2 ohms (red) (0.5dB/vertical div.).



Fig.2 Benchmark AHB2, small-signal, 10kHz squarewave into 8 ohms.

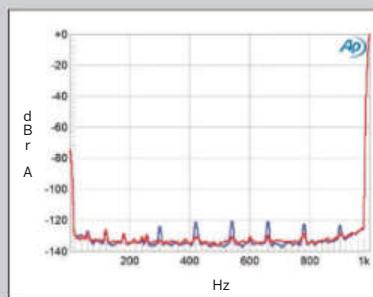


Fig.3 Benchmark AHB2, spectrum of 1kHz sinewave, DC-1kHz, at 1W into 8 ohms (linear frequency scale).

goal was to build a large amplifier that could exceed the performance of the DA101.

Benchmark set the performance goals, completed the thermal modeling, and designed the heatsinks and the casework. Benchmark also designed the analog input stage, the user interface, and the FPGA-based protection system, and laid out the amplifier printed-circuit board using some of our specialized layout techniques. THX engineers designed the state-of-the-art, low-noise resonant-switching power supply and the core section of the amplifier board.

The layout of the amplifier board is highly immune to magnetic and electrostatic fields, to achieve the A-weighted signal/noise ratio of 132–135dB. The two magnetic shield plates and all of the transformers are custom-built inside ferrite cores. The radiated magnetic fields produced by the AHB2 are much lower than those produced by other amplifiers of similar power, which



Compared with the sparsity of the front panel, the AHB2's back is all business.

means it can be placed directly above or below other, sensitive electronic components.

All of that makes sense, although the AHB2 can hardly be called a physically "large" amplifier. Installing the AHB2 was trivially easy, as it should be for a power amp. I simply connected my Audio Research MP1 preamp to the Benchmark's XLR inputs, and my banana-terminated speaker cables to its multiway output terminals, plugged in the power cord, and pushed the Power button. All seven of

measurements, continued

specifications are close to those of my Audio Precision system, both regarding the purity of its signal generator and the dynamic range of its analyzer. Correctly characterizing the AHB2's measured performance would therefore present a challenge. And, to my embarrassment, one of the speaker cables with which I routinely measure amplifiers and my test load set to 4 ohms were also introducing small amounts of nonlinearity. These problems—and here I'm talking about the difference between 0.0003% THD+noise and 0.0005%—haven't affected the measured performance of other amplifiers I've tested, but they were detectable with the AHB2's very low intrinsic distortion and noise. For this review, THX's Andrew Mason supplied me with a custom test load made with resistors using nonferrous leads and terminals, and a speaker cable terminated with a Speakon connector, both of which had guaranteed negligible nonlinearity.

All measurements were taken with balanced input signals, and throughout this review I refer to the AHB2's Channel 1 as "left" and Channel 2 as "right." The voltage gain at 1kHz into 8 ohms depended on the rear-panel switch position. With the switch set to a sensitivity of "9.8V/22dB," the gain was 9.2dB, which is appropriate for pro-audio sources but very low for domestic use. With the switch set to "4V/14.2dB," the AHB2's gain was 17dB; with it set to "2V/8.2dB," the gain was 22.9dB. This is still around 4dB lower than is usual for a domestic amplifier, but shouldn't be a problem with typical high-end preamplifiers and digital processors. The AHB2 preserved absolute polarity (ie, was non-inverting) at all three sensitivity settings, the XLR input jacks being wired with pin 2 hot. With the amplifier used in bridged-mono mode, the gain in the "2V/8.2dB" condition was the expected 6dB higher than in stereo

mode, at 29dB, an input signal of 100mV resulting in an output power of 1W into 8 ohms.

At 48 ohms, the input impedance was close to the specified 50k ohms at low and middle frequencies, but dropped to 31k ohms at the top of the audioband. This will have no practical consequences. The output impedance, including a 6' speaker cable, was a low 0.09 ohm at 20Hz and 1kHz, rising slightly to 0.22 ohm at 20kHz. As a result, the modification of the Benchmark amplifier's frequency response due to the interaction between this impedance and that of our standard simulated loudspeaker⁴ was just ± 0.1 dB (fig.1, gray trace). The amplifier offers a flat audioband response into 8 ohms, with then a -3dB point close to a high 200kHz (fig.1, blue and red traces), which correlates with the superbly square waveform of a 10kHz square-

4 See www.stereophile.com/content/real-life-measurements-page-2.

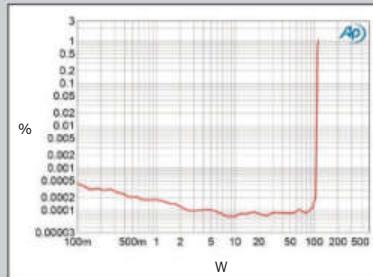


Fig.4 Benchmark AHB2, sum of distortion harmonics (dB ref. fundamental) vs 1kHz continuous output power into 8 ohms.

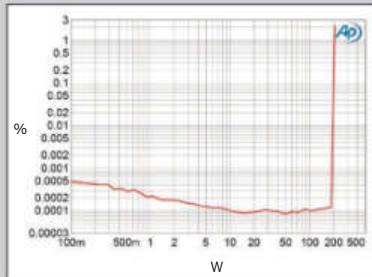


Fig.5 Benchmark AHB2, sum of distortion harmonics (dB ref. fundamental) vs 1kHz continuous output power into 4 ohms.

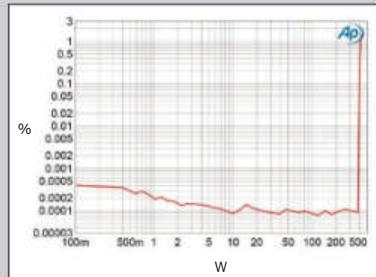


Fig.6 Benchmark AHB2, bridged-mono mode, sum of distortion harmonics (dB ref. fundamental) vs 1kHz continuous output power into 8 ohms.



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the AHB2's indicator LEDs briefly lit up, a relay clicked, and out came music.

Listening in the City

Benchmark and THX make much of the AHB2's lack of audible noise: something good systems aren't troubled by in any case. That said, it was probably the AHB2's low noise level that revealed to me much more apparent low-level detail in already-familiar recordings. I qualify that statement with *apparent* because, after hearing the AHB2 uncover previously unheard subtle details, I found I could now hear them when I returned to my other amps. I suspect that, being newly informed of their existence, my ear/brain could more easily extract those details from the output provided all along by my other amplifiers. This made a much greater impression on me than any subjective awareness of a lower noise floor, per se.

These surprising and delicious details were evident from the bass up through the midrange and extreme treble, which nonetheless remained silky and diaphanous. One example

was Hans Theessink's voice at the end of the phrase "as I lay sleeping," in "Late Last Night," from his album *Call Me* (CD, Blue Groove BG-4020): I could now distinctly hear how his gravelly tone faded off well before the fade of its ambient resonance. Yes, this was now audible through my other amps as well, when I returned to them—but until the AHB2, I hadn't heard it—or, at least, hadn't noticed it.

Similarly, the AHB2 uncovered so many of the little niceties peppering "Ride Across the River," from Dire Straits' *Brothers in Arms: 20th Anniversary Edition* (SACD/CD, Vertigo 9871498), that it was like savoring the spicy bits in a Xi'an broth for the first time. Classical music, of course, benefited from this newfound richness of information, as was clearly demonstrated by the last minute or so of Adám Fischer and the Budapest Festival Orchestra's recording of the *Adagio* of Bruckner's Symphony 7 (SACD/CD, Channel Classics CCS SA 33714). As the horns enter, the fading strings diminish but remain audible as they continue to provide the tonal foundation. The resulting impression was one of transparency, neutrality, and liveliness. I could hear into the

measurements, continued

wave into this load (fig.2), with short risetimes and no overshoot or ringing. However, the AHB2's top-octave output starts to slope down slightly into lower impedances, with the response into 2 ohms down by 0.5dB at 20kHz and by 3dB at 91kHz (fig.1, green trace).

Remarkably, the frequency response was not affected by the setting of the sensitivity switch, or by using the amplifier in bridged-mono mode. However, the ultrasonic response in bridged-mono mode shelved down faster than in stereo mode, and as the two channels' output stages are in series in this mode, the output impedance, again including the 6' of speaker cable, was higher than in stereo, at 0.14 ohm at 1kHz.

The AHB2's channel separation was superb at >110dB in both directions below 2kHz, and still 90dB at 20kHz. The wideband S/N ratio, measured in the high-gain, stereo condition with the input shorted to ground and ref. 1W

into 8 ohms, was very high, at 89.3dB. Reducing the measurement bandwidth to 22Hz-22kHz increased the ratio to 106dB, while switching an A-weighting filter into circuit increased it further, to 108.5dB. Referenced to the AHB2's clipping power of 100W, this is equivalent to a dynamic range of 128.5dB, which is close to the specified 132dB. The S/N ratio did increase by around 3dB in the lowest-gain condition, implying that the specified ratio was measured in that mode. However, I was surprised to find that the S/N decreased slightly when the amplifier was very hot.

Fig.3 shows the spectrum of the AHB2's low-frequency noise floor while it drove 1kHz at 1W into 8 ohms. The level of random noise is very low—equivalent to 16 bits' worth of resolution, the RMS sum of the FFT bins adding up to -96dB (see above)—though some very low-level, power-supply-related spuriae can be seen, particularly in the left channel (blue

trace). This graph was taken with each channel driven individually, the other not being connected. Peculiarly, when I repeated the spectral analysis with both channels driven simultaneously, the level of random noise in the right channel rose by 4-5dB.

We define clipping as being when the THD+noise percentage in an amplifier's output reaches 1%. However, performing this measurement proved problematic, as the AHB2's actual THD+noise percentage below the clipping point was only 2-3dB higher than the intrinsic distortion of my Audio Precision system. Andrew Mason therefore supplied me with a custom test procedure written by Audio Precision's Steve Petersen, which actually calculates the ratio between the sum of the distortion harmonics (thus disregarding the contribution of noise) for a series of output powers up to clipping.

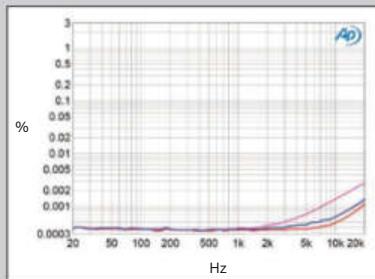


Fig.7 Benchmark AHB2, THD+N (%) vs frequency at 15.4V into: 8 ohms (left channel blue, right red), 4 ohms (left magenta).

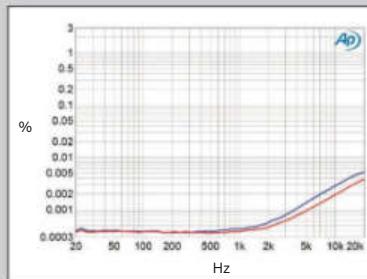


Fig.8 Benchmark AHB2, THD+N (%) vs frequency at 15.4V into 2 ohms (left channel blue, right red).

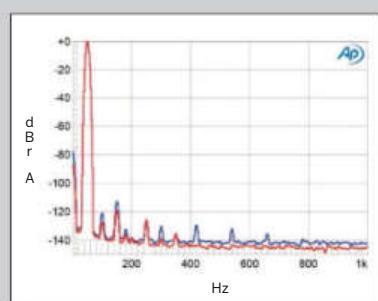


Fig.9 Benchmark AHB2, left channel, spectrum of 50Hz sinewave at 50W into 8 ohms (blue) and spectrum of 50Hz sinewave with Audio Precision SYS2722 analyzer looped back to generator at 20V (red) (linear frequency scale, DC-1kHz).



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ensemble and aurally navigate the soundstage. Or, better, I could just surrender to the warmly touching denouement.

In addition to quantity of soundstage detail, the AHB2 was also “large” in power output. It was clear that this 100Wpc (into 8 ohms) stereo amp had all the power needed to drive with aplomb my Bowers & Wilkins 800 Diamond speakers to any reasonable level. At an SPL of 90dB, the B&Ws are of neither particularly high nor low efficiency, but JA has told us what makes them difficult to drive:

There are minima of 3.15 ohms at 91Hz, 3.1 ohms at 620Hz, and 3.67 ohms at 21kHz. Given that there are current-hungry combinations of 4 ohms and -52° electrical phase angle at 62Hz and 5.3 ohms and -39° phase angle at 8.6kHz, I believe this speaker should be rated as a 4 ohm load rather than the specified 8 ohms.²

That seemed to present no problem for the AHB2, which, Benchmark claims, can pump out nearly 200Wpc into 4 ohms or 240Wpc into 3 ohms. In practice, I had to

This compact, lightweight, cool-running, class-AB power amp is a real breakthrough in every way.

push the AHB2 to unreasonable and personally uncomfortable volume levels to get the least blink from one of its Clip LEDs. For this I used “Jazz Variants,” from the O-Zone Percussion Group’s *La Bamba* (CD, Klavier KD 77017), and the glorious conclusion of Saint-Saëns’s Symphony 3, with organist Olivier Latry, Christoph Eschenbach, and the Philadelphia Orchestra (SACD/CD, Ondine ODE-1094-5). Both recordings are remarkably clean and spacious, with powerful bass; the AHB2 rose to the occasion, driving the two 800 Diamonds (sans subwoofer) to volumes louder than I ever hope to hear from them again (though it’s nice to know I can). I also, very briefly, ran the AHB2 as a bridged

2 See my review of B&W’s 800 Diamond in the May 2011 issue: www.stereophile.com/content/bampw-800-diamond-loudspeaker-measurements.

measurements, continued

Using this procedure, and with just the left channel driven, the AHB2 clipped at 108W into 8 ohms (20.3dBW) and 210W into 4 ohms (20.2dBW), both powers slightly greater than those specified by Benchmark, which are with both channels driven. Fig.4 plots how the harmonics percentage changes with power into 8 ohms, fig.5 into 4 ohms. The traces in these graphs are very close to the measured residual level of the Audio Precision system, almost up to the point of actual clipping, which is extraordinarily linear for a power amplifier. Fig.6 plots the harmonics percentage with the amplifier in bridged-mono mode into 8 ohms. The clipping point is now 410W (26.1dBW), this also a little higher than Benchmark’s specification.

I plotted how the AHB2’s THD+N changed with frequency at a level where I could be sure I was measuring actual THD rather than N: 15.5V, equivalent to 30W into 8 ohms, 60W into

4 ohms, and 120W into 2 ohms. Both channels were again extraordinarily linear into 8 ohms (fig.7, blue and red traces) and 4 ohms (magenta trace). The measured THD+N percentage did rise very slightly above 5kHz into 8 ohms, and there was a slightly greater rise into 4 ohms (fig.7, magenta) and 2 ohms (fig.8).

It was difficult to capture a representative distortion waveform into 8 ohms because the actual distortion was so low in level that it was obscured by noise, even at fairly high powers. But the oscilloscope trace (not shown) did suggest that the distortion is predominantly third-harmonic in nature. The blue trace in fig.9, taken at 50Wpc into 8 ohms, confirms that the third harmonic is highest, though the red trace—taken with the SYS2722’s analyzer input looped back to its generator output at the same 20V level, so that any nonlinearity due to the analyzer’s input circuitry would be the

same in both channels—reveals that the Benchmark amplifier is adding only small amounts of the second and third harmonics at this output level.

As a check, I performed a spectral analysis on the signal with the fundamental tone notched out, so that the full resolution of the Audio Precision’s analyzer could be brought to bear on the distortion and noise with the AHB2 driving a 1kHz tone at 50Wpc into 8 ohms. To make the distortion harmonics stand out as much as possible from the level of random noise, I averaged 32 captures⁵ to produce the graph shown in fig.10. (Note the expanded vertical scale in this graph.) The second and third harmonics lie at -128dB (0.00004%) and -124dB (0.00006%) with respect to what would have been the level of the fundamental; both are close to the residual distortion in the Audio Precision’s signal generator.

Finally, tested with an equal mix of 19 and 20kHz tones, the AHB2 produced very low levels of intermodulation distortion (fig.11).

Benchmark Media Systems’ AHB2 is an extraordinary amplifier. Not only does its performance lie at the limits of what is possible for me to reliably test, it packs high power into a very small package, especially when used in bridged-mono mode. It is truly a high-resolution amplifier.—John Atkinson

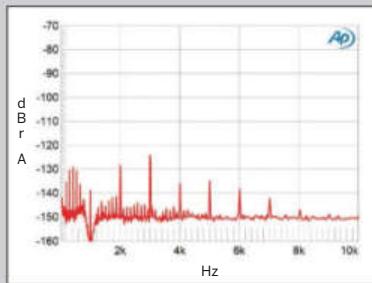


Fig.10 Benchmark AHB2, left channel, spectrum of 1kHz sinewave, DC-10kHz, at 50W into 8 ohms, with fundamental notched out (linear frequency scale).

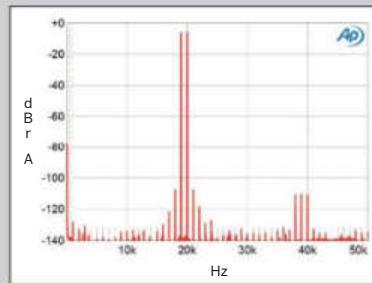


Fig.11 Benchmark AHB2, HF intermodulation spectrum, DC-50kHz, 19+20kHz at 50W peak into 8 ohms (linear frequency scale).

5 Because the distortion harmonics are correlated with the signal but the noise is not, each doubling of the number of captures will reduce the level of random noise by 3dB.

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monoblock into a single loudspeaker; it sounded the same, but I thought it would be pointless to try to get it to clip if I wanted to avoid annoying my neighbors. Just to let the power-hungry know...

Tonal balance is a curious audio parameter. Careful listeners often hear what sounds like an uneven or tilted frequency balance, even when measurements taken under lab conditions show it to be flat. Lots of real-world factors might account for this, including interaction of an amplifier's output stage with the complex input impedance of a loudspeaker. At first, I thought the AHB2 sounded less bright, and less full in the bass, than the other amps I had on hand, but after only a few days of listening I began to accept that it sounded more "right" than any of them. Now the treble wasn't so much un-bright as smoother and unaccented. The bass had all requisite extension and detail (see above), but seemed to be more naturally balanced with the rest of the audioband.

As time passed and I listened more, I grew to love the AHB2's sound, and undertook the rewarding effort of listening through it to as many different recordings as I could. It was a great pleasure, as old friends, some already mentioned, smiled anew. Yes, I could hear the differences between the different amplifiers, and that's the point. This compact, lightweight, cool-running, class-AB power amp is a real breakthrough in every way. I definitely did not look forward to giving it back to JA for testing.

Listening In the Country

I took the AHB2 along with me for a weekend at our country place, in Connecticut, to see if it would be as successful with my more modest system there. That's where I discovered that my new hero amp wasn't quite perfect. Oh, its power and resolution were still not to be faulted, but through a pair of Monitor Audio Silver 8 speakers, the sound was somewhat hard and thin. Could it have had something to do with the Silver 8s themselves? While that speaker's minimum impedance is 3.5 ohms at 165Hz, but with a benign phase angle, JA points out that "there is a combination of -34° and 4.5 ohms at 100Hz, a frequency where music can have high energy." Still, he says, "A 4 ohm-rated amplifier or receiver will have no problems driving this speaker to high levels."³ If so, I would expect the Benchmark AHB2 to be more than up to the task.

But here's how it played out. A 16/44.1 PCM file ripped from the above-mentioned Theessink CD seemed robbed of some of its warmth and resonance. Familiar recordings of women's voices, such as Marianne Beate Kielland singing Finzi's "Come Away, Death" (with pianist Sergei Osadchuk; 24-bit/192kHz PCM download from SACD/CD, 2L 2L-064-SACD), and Sara K.'s cover of "Can't Stand the Rain" from her *Hell or High Water* (CD, Stockfisch SFR 357.4039.2), sounded strange. Both voices were higher, not in pitch but in tonal range, as if they'd been transformed from mezzo-sopranos (which Kielland is) to sopranos. Again, I would describe it as a loss of warmth and resonance in the fundamentals of their voices. Unfortunately for the AHB2, this loss pervaded the sound of whatever recording I played. I wrote it off as an example of an amp-speaker mismatch.

But the seed had been planted in my mind. Back in Manhattan, all seemed better again with the AHB2—except for one troubling event. I've been ripping my CD collection to my 16TB NAS for a couple weeks (already it seems like months), and have become randomly reacquainted

ASSOCIATED EQUIPMENT

MANHATTAN SYSTEM

Digital Sources Sony XA-5400ES SACD/CD player, Oppo Digital BDP-105 universal BD player, Baetis XR2 PC-based music server, Benchmark DAC2 HGC and exaSound e28 D/A processors, QNAP TS-569L NAS.

Preamplifier Audio Research MP1 (multichannel).

Power Amplifiers McIntosh MC303, NAD M22, Parasound Halo A 31.

Loudspeakers Bowers & Wilkins 800 Diamond.

Cables Digital: AudioQuest Vodka (HDMI) & Carbon (USB), Black Cat Veloce, van den Hul Flat 180 (HDMI). Analog: AudioQuest Earth/DBS balanced. Speaker: AudioQuest Oak/DBS biwire. AC: AudioQuest NRG-10, JPS Aluminata.

Accessories Environmental Potentials EP-2450 power conditioner, CyberPower 850PFCLCD AC filter (supplied with Baetis server).

CONNECTICUT SYSTEM

Digital Sources Oppo Digital BDP-103 universal BD player; Mac mini server running Boot Camped Windows 7, JRiver Media Center; miniDSP U-DAC8 DAC with UpTone Audio USB Regen USB repeater.

Preamplification Marantz AV8801 preamplifier-processor.

Power Amplifier Bryston 9BSST2.

Loudspeakers Monitor Audio Silver 8.

Cables Interconnect: AudioQuest Vodka (HDMI), Kubala-Sosna Anticipation (RCA) & Fascination (XLR). Speaker: Kubala-Sosna Anticipation & Fascination. AC: Kubala-Sosna Emotion.

Accessories Brickwall Series-Mode 8R15AUD surge suppressor.—Kalman Rubinson

with some old favorites—such as the marvelous Emma Kirkby singing Mozart's "Exsultate, Jubilate" (with Christopher Hogwood and the Academy of Ancient Music; CD, L'Oiseau-Lyre 168055), which I hadn't played in ages. Sadly, the divine Dame Emma sounded to have aged badly on this 1984 CD. Akin to what I'd experienced in Connecticut, her voice was robbed of its bell-like richness by the AHB2, only to have it restored when switching to my other amps. Despite this, I'm still addicted to the Benchmark's sound—and I'm still unhappy about shipping it off to JA.

Conclusions

Just because I found Benchmark Media Systems' AHB2 not to be absolutely perfect under all conditions—after all, what is?—doesn't mean that I want to represent it as anything less than a marvelous-sounding amplifier. The AHB2 was capable of drawing more music from my B&W 800 Diamonds than I'd anticipated, and, mostly, sounded better than the other amplifiers I've used to drive those speakers. Combine the AHB2's superb sound quality with its low weight, low noise, low heat, and low cost, and it's clearly an amplifier that must be heard—even by those who can afford amps costing as much as 10 times more. That makes the AHB2 more than a Benchmark. That makes it a bargain. ■

³ See my review of Monitor Audio's Silver 8 in the January 2015 issue: www.stereophile.com/content/monitor-audio-silver-8-loudspeaker-measurements.



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JOHN ATKINSON

Arcam FMJ P49

POWER AMPLIFIER



I first met electronics engineer John Dawson in 1979, at a British audio show. The company he'd co-founded, A&R Cambridge, had just launched the A60, a slim, elegant-looking, 40Wpc integrated amplifier costing only £99 (then equivalent to \$217).

By the time I reviewed the Mk.2 version, in the October 1984 issue of *Hi-Fi News & Record Review*, the A60's price had risen to £199 (\$248), the company was now called Arcam, and more than 22,000 A60s had been sold, making it one of the best-selling amplifiers in England. While preparing that review I had visited Arcam's factory, near the English town of Ely, where Dawson had shown me filing cabinets containing a separate manufacturing report for each and every one of those A60s.

It came as a surprise that Arcam was about to introduce a relatively cost-no-object amplifier, to be built in North America.

In the 30 years since, Arcam's products have endured as a mainstay of the affordable-audio market—its budget-priced Alpha and Solo models and its somewhat more expensive FMJ series have been very favorably reviewed in *Stereophile*—so it came as a surprise to learn from Dawson, on a November 2013 visit to the company's new Cambridge-area headquarters, that Arcam was about to introduce a relatively cost-no-object amplifier, to be built in

North America: Following their 2012 acquisition by Montreal-based JAM Industries—primarily a manufacturer and distributor of pro-audio gear—Arcam's design and engineering remained in the UK, with production of the affordable product lines offshored to China, and with the intent to manufacture Arcam's higher-end products at a JAM-owned plant in New York State.

Those new products—the FMJ C49 preamplifier, FMJ A49 integrated amplifier, and FMJ P49 stereo power amplifier—made their US consumer debut at the 2014 Rocky Mountain Audio Fest, where Jason Victor Serinus enthused over the sound the P49 was producing with Canton 2.3 Reference loudspeakers: “as full-range as can be, completely under control, and nail-me-to-the-wall fabulous,” he wrote.

I signed myself up to review the FMJ P49 amplifier, which costs \$4999 and is specified to deliver 200Wpc into 8 ohms or 400W into 4 ohms.

The FMJ P49

The FMJ P49's plain-looking aluminum front panel, finished in dark gray, is almost featureless: On it are only a power button; one pushbutton each to activate the two pairs of speaker outputs; and, at the bottom, a discreet slot that runs almost the full width of the amp, to provide cooling air to the internal heatsinks. The acoustically

SPECIFICATIONS

Description Solid-state, two-channel power amplifier. **Inputs:** 1 pair unbalanced (RCA), 1 pair balanced (XLR). **Outputs:** 2 pairs binding posts, 1 pair preamplifier outputs. **Power output:** 200Wpc into 8 ohms (23dBW), both channels driven; 400W into 4 ohms (23dBW), one channel driven. Frequency

response: 20Hz-20kHz, ± 0.05 dB. Sensitivity for maximum output: 1.15V, single-ended input; 2.3V, balanced input. Input impedance: 10k ohms. Harmonic distortion: 0.001% (1kHz at 80% power into 8 ohms). Signal/noise: 110dBA ref. 50W into 8 ohms. Maximum power consumption: 1kW.

Dimensions 17" (433mm) W by 6.75" (171mm) H by 16.75" (425mm) D. **Weight:** 39.6 lbs (18kg) net, 43.5 lbs (19.7kg) shipping.

Finish Dark gray.

Serial numbers of units reviewed PA4901035_14_52, FPA4901087_14_52.

Price \$4999. Approximate number of dealers: 125.

Manufacturer Arcam, The West Wing, Stirling House, Waterbeach, Cambridge CB25 9QE, England, UK. **Web:** www.arcam.co.uk. **US distributor:** The Sound Organisation, 159 Leslie Street, Dallas, TX 75207. **Tel:** (972) 234-0182. **Fax:** (972) 234-0249. **Web:** www.soundorg.com.

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Stephen Dawson, Audio Esoterica, Australia

"This Sigma system is a huge achievement which everyone must absolutely discover."
Adrien Rouah, Québec Audio & Video, Canada

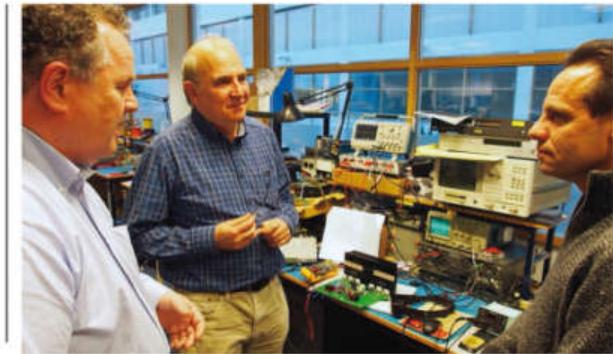
CLASSE
Classé — every detail matters.

damped steel case is also finished in dark gray, with vents in the top and bottom panels to aid cooling. As well as the two pairs of speaker terminals, the rear panel offers balanced (XLR) and unbalanced (RCA) inputs, with a slide switch to choose between them. There is also a pair of Preamplifier Output RCAs that mirror the input signal. Two other slide switches select voltage gain (25 or 31dB) and Stereo or Bridged-Mono operation.

The P49 can thus be used as: a conventional stereo amplifier, with one of the speaker outputs active; biwired, with both speaker outputs active; a biamped mono amplifier, with the stereo outputs independently feeding a speaker's high and low sections; or a high-power monoblock, with the two amplifier channels in series. The excellent manual gives full details on how to operate the P49 in each of these modes.

Plain on the outside, the P49 is elegant within. A large toroidal power transformer lies behind the left-hand side of the front panel, the heatsink next to it taking up the rest of the width. Mounted on the sink are three pairs of ON Semiconductor ThermalTrack 200W complementary bipolar devices for each channel's output stage, with built-in temperature sensing.

The output stages are operated in class-G, meaning that there are actually two pairs of positive and negative voltage rails feeding the output transistors. These transistors are usually powered from $\pm 35V$ rails, but when the input signal voltage would lead to clipping—at around 50W into 8 ohms—MOSFET “lifters” switch to $\pm 65V$ rails, allowing the signal to be amplified by the same devices up to the specified 200W without clipping. (These lifters are said to be capable of turning on and



Top: Arcam's designer John Dawson (center) with managing director Charlie Brennan (left) and *Sound & Vision* editor-in-chief Rob Sabin (right). **Bottom:** Arcam moved into this impressive-looking HQ in March 2013.

The Arcam FMJ P49 sits at that sweet spot defined by the Law of Diminishing Returns.

off with as much as 60A peak current in less than a microsecond.) Class-G allows

the power supply to be more economically designed, as the higher voltage rails have only to be able to supply current for a fraction of the signal's duty cycle, the lower voltage rails supplying the bulk of the continuous current demanded by the loudspeakers.

MEASUREMENTS

I performed a full set of measurements on one of the two FMJ P49 samples I was sent (serial no. FPA4901087_14_52), using my Audio Precision SYS2722 system (see the January 2008 “As We See It,” www.stereophile.com/content/measurements-maps-precision). As the P49 is specified as having a maximum power output of 200Wpc into 8 ohms,

I preconditioned it before the measurements by running both channels at one-third that power, 67W, with a 1kHz signal into 8 ohms, for one hour. Following that period, the top panel was warm, at 109.8°F (43.3°C), though the vents covering the internal heatsinks were hotter, at 134.1°F (56.8°C). The THD+noise percentage at this power level was 0.001% with the amplifier

cold, but 0.025% with it hot.

Peculiarly, I heard the P49 emit a mechanical whine at continuous levels greater than 54Wpc into 8 ohms. Recording this sound with a microphone held over the vents in the top panel revealed that it was related to the signal frequency; eg, with a 1kHz signal, the whine comprised tones at 2, 4, and 6kHz, etc.; with a 2kHz signal, the sound comprised tones at 4 and 8kHz, etc. This behavior was obviously related to the power-supply voltage-rail switching associated with the class-G output stage, as this switching occurs twice each half-cycle once the output power exceeds the threshold. But it is fair to note that I could hear nothing amiss in my listening room with music playing, only in the quiet surrounds of my tiny test lab with pure tones at high powers.

The P49's voltage gain at 1kHz into 8 ohms with unbalanced drive was exactly 31dB with the gain set to “31,” 25dB with it set to “25.” Unusually, the balanced gains were 6dB lower than

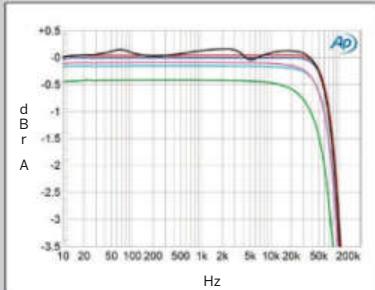


Fig.1 Arcam FMJ P49, balanced frequency response at 2.83V into: simulated loudspeaker load (gray), 8 ohms (left channel blue, right red), 4 ohms (left cyan, right magenta), 2 ohms (red) (0.5dB/vertical div.).

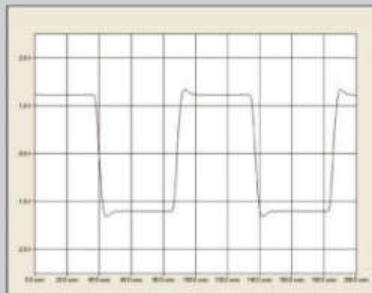


Fig.2 Arcam FMJ P49, small-signal, 10kHz square-wave into 8 ohms.



B

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A superficial reading of Arcam's literature suggests that the output devices are biased into class-A. But with an 8 ohm load, that would mean a standing current of 1.75A for each channel and a very hot-running amplifier, even if the heatsinks were much larger. Closer reading reveals that the output circuit "includes a proprietary error correction circuit that modulates the modest standing currents in the output stage and ensures a near-constant output impedance for peak currents of up to about ± 4 amps, corresponding to well over 50W into 8 ohms. The P49 thus behaves exactly like a classical class-A amplifier up to this power level in terms of performance but without the heat penalty."

Listening

I wouldn't say that the Arcam FMJ P49 offers the ultimate in clarity, transparency, call it what you will—but at just under \$5000, it meets a high standard in this respect. While preparing this review, I was compelled, by Fred Kaplan's piece on Stereophile.com,¹ to buy Miles Davis's *At Newport 1955–1975: The Bootleg Series Vol.4* (4 CDs, Columbia/Legacy 88750 8195 2). Disc 2 features a set from July 1966 featuring Davis's "second great quintet": Wayne Shorter, tenor sax; Herbie Hancock, piano; Ron Carter, double bass; and Tony Williams, drums. Carter starts "All Blues" at a break-neck one-in-the-bar, triple-time pace. Miles's trumpet is way out front in the mix, with kick drum and bass a little suppressed. But with the Arcam in the system, all was appropriately audible—even some print-through on the 50-year-old mono master tape.

I could readily hear the difference between Beethoven's

The power transformer and heatsink occupy almost half the P49's interior.



Plain on the outside, the P49 is elegant within.

Violin Sonata 10 in G, Op.96, performed by violinist David Abel and pianist Julie Steinberg (24-bit/192kHz ALAC needle drop from LP, Wilson Audiophile W-8315) and the duo's recording of Brahms's Violin Sonata 1 in G,

¹ See www.stereophile.com/content/miles-davis-newport-1955%C2%961975.

measurements, continued

these figures, though this agrees with the specification. In bridged-mono mode, the gain was 6dB higher for both unbalanced and balanced inputs. The unbalanced input impedance was 9.6k ohms from 20Hz to 20kHz, which will be a little on the low side for some tube preamplifiers; the balanced input impedance was 9.6k ohms per signal phase—*ie*, 19.2k ohms overall. Both unbalanced and balanced inputs preserved absolute polarity, the XLR jacks being wired with pin 2 hot.

The small-signal output impedance

was a little higher than usual for a solid-state design, at 0.15 ohm at 20Hz and 1kHz, rising slightly to 0.19 ohm at 20kHz. (Unusually, in bridged-mono mode, the impedance was slightly lower despite there now being two output stages in series.) With stereo operation, the modulation of the P49's frequency response that results from the interaction between the amplifier's source impedance and the impedance of our standard simulated loudspeaker was a small ± 0.15 dB (fig.1, gray trace), while into an 8 ohm resistive load

the response rolled off sharply above 40kHz, reaching -3 dB at 100kHz (fig.1, blue and red traces). The response rolled off a little earlier into 2 ohms (green trace), but was still basically flat in the audioband. The response in bridged-mono mode was identical to that in stereo mode. Correlating with the wide small-signal bandwidth, the P49's reproduction of a 10kHz squarewave into 8 ohms had very short risetimes (fig.2). Though a small degree of overshoot can be seen in this graph, there is no ringing.

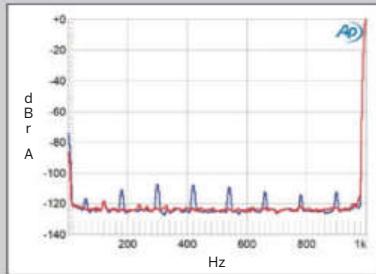


Fig.3 Arcam FMJ P49, spectrum of 1kHz sinewave, DC–1kHz, at 1W into 8 ohms (linear frequency scale).

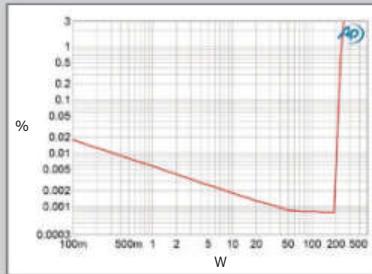


Fig.4 Arcam FMJ P49, distortion (%) vs 1kHz continuous output power into 8 ohms.

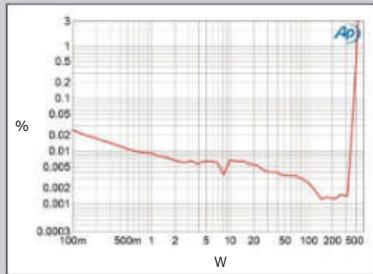


Fig.5 Arcam FMJ P49, distortion (%) vs 1kHz continuous output power into 4 ohms.

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Op.78 (DSD64 file, Wilson Audiophile W-8722). Both performances had been recorded with a spaced pair of Schoeps omni mikes; through the Arcam P49, both very effectively placed the musicians in the room. However, the Beethoven, made with a ReVox A77 tape deck, had a clearly warmer balance and a more amorphous stereo image than the Brahms, which was made with the John Curl-designed Ultramaster recorder.

Reflection, the first album from British blues band Steamhammer (24/192 ALAC needle drop from LP, English

CBS 63611), is a guilty pleasure of mine, considering the album's excessive use of compression and artificial reverb. In my favorite track, "Even the Clock," the threads in the mix—chiming lead guitar, picked rhythm-guitar riff, offstage flute, spring-reverb splashes on the sound of the clock at the beginning, and the suck-and-blow compression effects on the drums, cymbals, and ostinato bass line—were all laid bare by the Arcam P49, but without disturbing the holistic quality of the presentation, without anything being "spotlit." This was just as you would experience in real life—except, of course, there is no "real life" with a recording like this.

The same thing was true with classical recordings. For some reason, I've been listening to a lot of Rachmaninoff



Two pairs of speaker terminals per channel allow easy bi-wiring.

The Arcam's midrange still managed to pay homage to Ella's voice.

this past summer; *Stereophile's* founder, the late J. Gordon Holt, used to dismiss the Russian as a composer of "palms-in-the-

eye-sockets schmaltz,"² but I find addictive his combinations of glorious melodies and equally glorious orchestrations. Using the Tidal streaming service, I've been exploring alternative recordings of Rachmaninoff works I already have in my collection. For a while my favorite Piano Concerto 2 has been George Vakhnadze's, with Jansug Kakhidze conducting the Tbilisi Symphony Orchestra (ALAC files ripped from CD, Sony Classical Infinity Digital 62294), though the relatively closely miked piano has recently led me to prefer

2 Erstwhile *Stereophile* publisher Larry Archibald remembers Gordon coining this phrase in a review of Tchaikovsky's Symphony 6, but I have a memory of Gordon saying it as we listened to a Rachmaninoff recording together soon after I joined the magazine.

measurements, continued

Channel separation was superb, at >100dB in both directions below 3kHz, and still >80dB at 20kHz. The unweighted, wideband signal/noise ratio, measured with the inputs shorted to ground, measured 78.7dB in the left channel, 79.9dB in the right. These ratios respectively improved to 84.5 and 87.7dB when the measurement bandwidth was restricted to the audio-band, with A-weighting giving further improvement, to 88.1 and 90.1dB. The

level of random noise in the P49's outputs was extremely low, but the slightly less good S/N ratios in the left channel were due to there being very low levels of spuriae present at 60Hz and its odd harmonics (fig.3). These are perhaps due to the signal circuitry for that channel being closer to the large toroidal power transformer. They were slightly higher in level when the amplifier was hot than when it was cold.

With one channel driven, the P49

comfortably exceeded its specified maximum power of 200Wpc into 8 ohms, clipping at 250W into 8 ohms or 24dBW (fig.4), with clipping defined as the output power when the THD+N present in the output reached 1%. Into 4 ohms (fig.5), the Arcam clipped at the specified 400W (23dBW), while in bridged-mono mode (fig.6) it clipped at 750W into 8 ohms (28.75dBW).

I examined how the percentage of THD+N changed with frequency at a

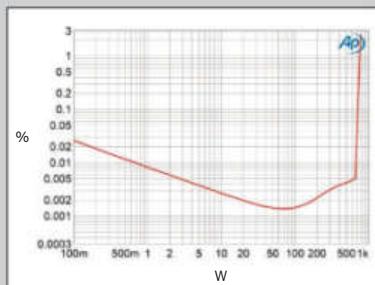


Fig.6 Arcam FMJ P49, bridged-mono mode, distortion (%) vs 1kHz continuous output power into 8 ohms.

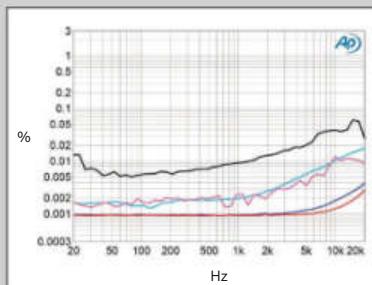


Fig.7 Arcam FMJ P49, THD+N (%) vs frequency at 17.9V into: 8 ohms (left channel blue, right red), 4 ohms (left cyan, right magenta), 2 ohms (left, gray).

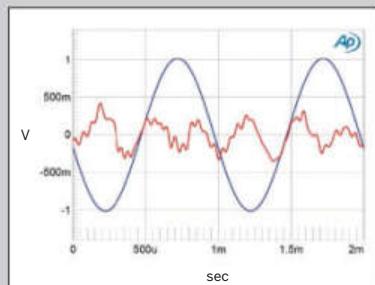


Fig.8 Arcam FMJ P49, 1kHz waveform at 67W into 8 ohms, 0.0018% THD+N (blue); distortion and noise waveform with fundamental notched out (red, not to scale).

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Dejan Lazic's more naturally miked instrument, with Kirill Petrenko conducting the London Philharmonic (DSD64 from SACD, Channel Classics CCS SA26308). But as I write this review, I'm listening to Piano Concerto 2 played by Leif Ove Andsnes, with Antonio Pappano conducting the Berlin Philharmonic (lossless FLAC, Tidal/EMI 474813-2), and it has me under a spell. With the PS Audio DAC driving the Arcam directly and KEF's extraordinary little LS50 loudspeakers doing the honors, this was great music-making in great sound.

One of my torture tracks for an amplifier's bass reproduction is James Blake's cover of "Limit to Your Love," from the 2011 dub-step CD of that title (Atlas/A&M), which has Blake's idiosyncratic vocal and stabbing piano chords underpinned by subbass synth grumblings. With the Arcam driving the GamuT RS7 speakers, which have extended low bass, this track demonstrated the P49's excellent control—especially near the start, when two closely spaced bass tones produce massive beating.

As the P49 has a class-G output stage, I monitored its output voltage during one of my listening sessions using the YGA speakers. At my usual listening levels, with Steely Dan's *Gaucho* (24/96 ALAC files transcoded from FLAC, MCA B0000868-36/HDtracks) peaking at 90dB (Studio Six iPhone app, Fast, C-weighted reading), the RMS level never exceeded 7V, meaning that only transient waveform peaks were activating the voltage-rail lifters. The P49 behaved like a high-performance 50W/17dBW amp with

ASSOCIATED EQUIPMENT

Analog Sources Linn Sondek LP12 turntable with Lingo power supply, Linn Ekos tonearm, Linn Arkiv B cartridge.

Digital Sources Antipodes DX Reference music server; Ayre Acoustics C-5xeMP universal player; Apple 2.7GHz i7 Mac mini running OS10.7, Audirvana Plus 1.5.10, iTunes 11, Pure Music 2.0; PS Audio PerfectWave DirectStream D/A converter; dCS Vivaldi digital playback system; Audio-Quest JitterBug USB filter; Ayre Acoustics QA-9 USB A/D converter.

Preamplification Channel D Seta L phono preamplifier.

Power Amplifiers Parasound Halo JC 1, Pass Labs XA60.5 (both monoblocks).

Loudspeakers GamuT RS7, KEF LS50, PSB Imagine T3, YG Acoustics Carmel 2.

Cables Digital: AudioQuest Coffee USB, Kubala-Sosna Elation! AES/EBU, Transparent USB (with dCS). Interconnect (balanced): AudioQuest Wild Blue. Speaker: Kubala-Sosna Elation!. AC: Kubala-Sosna Elation!, manufacturers' own.

Accessories Audio Power Industries 116 Mk.II & PE-1 AC line conditioners (computers, hard drive); ASC Tube Traps, RPG Abffusor panels; Ayre Acoustics Myrtle Blocks; Target TT-5 equipment racks; AC power comes from two dedicated 20A circuits, each just 6' from breaker box.

—John Atkinson

measurements, continued

level (17.9V, equivalent to 40W into 8 ohms, 80W into 4 ohms, and 160W into 2 ohms) where I could be sure I was measuring distortion rather than noise. Other than a small rise in the top two octaves, the distortion was very low in level into 8 and 4 ohms. (As with the noise, the distortion was slightly higher when the amplifier was hot.) The P49, however, was less comfortable driving the demanding 2 ohm load at this signal level (fig.7, gray trace). In bridged-mono mode (not shown), the top-octave rise in THD+N was greater, but was still 0.002% at a level of 67W into 8 ohms.

I looked at the spectral content of

the distortion at a level—67Wpc into 8 ohms—where the class-G voltage-rail switching was operating. Even so, unlike the Creek Evolution 100A amplifier, reviewed in July 2015, which has a similar output-stage topology, no switching artifacts can be seen in the residual distortion waveform¹ (fig.8). This graph suggests that the distortion is primarily third-harmonic in nature, and while spectral analysis at a slightly higher level with the amplifier cold (fig.9) reveals that the second harmonic is also present, the left channel (blue trace) shows significantly lower distortion than the right (red). The second and third harmonics are higher in

bridged-mono mode (fig.10), though it is fair to note that this graph was taken with the amplifier hot. Intermodulation distortion was very low, even at high power into 4 ohms (fig.11).

Its measured performance indicates that Arcam's FMJ P49 is a well-engineered amplifier, with no problems resulting from its use of a class-G output stage. Prolonged running at power levels greater than the class-G voltage-rail transition did appear to raise distortion levels, but not to anywhere near the point where they could lead to audible problems.—John Atkinson

¹ See fig.8 at www.stereophile.com/content/creek-evolution-100a-integrated-amplifier-measurements.

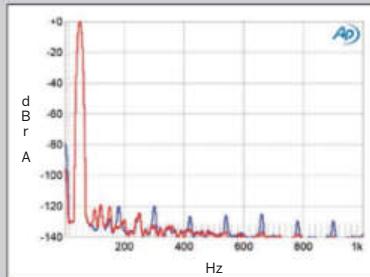


Fig.9 Arcam FMJ P49, spectrum of 50Hz sinewave, DC-1kHz, at 100W into 8 ohms (linear frequency scale).

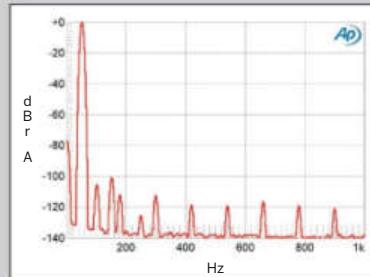


Fig.10 Arcam FMJ P49, bridged-mono mode, spectrum of 50Hz sinewave, DC-1kHz, at 100W into 8 ohms (linear frequency scale).

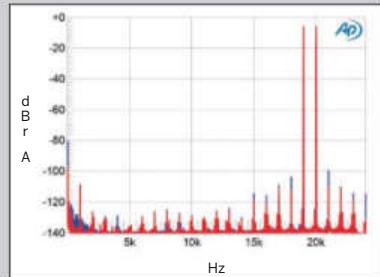


Fig.11 Arcam FMJ P49, HF intermodulation spectrum, DC-24kHz, 19+20kHz at 200W peak into 4 ohms (linear frequency scale).

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Comparisons

For the past couple of years I've been living on a diet of ultra-expensive amplifiers that has included the Ayre Acoustics MX-R Twenty, Bel Canto Black, Bricasti M28, Lamm M1.2 Reference, and MBL Corona C15—all monoblocks costing at least \$20,000/pair. But *Stereophile* still had in storage our original review samples of the Pass Labs XA60.5 monoblocks, which I reviewed in January 2014,³ and the Parasound Halo JC 1 monoblocks, which Michael Fremer favorably reviewed in February 2013.⁴ At \$11,000/pair and \$9000/pair, respectively, the Nelson Pass-designed Pass Labs amps and the John Curl-designed Parasounds are closer in price to the John Dawson-designed FMJ P49, and almost identically priced when the P49 is used as a pair in biamped or bridged-mono mode.

The Pass Labs amplifiers sounded as I described in my review: a somewhat softened bass, but a magic midrange and sweet, detailed highs. Switching to the Arcam in stereo, with levels matched, revealed a similar sound at low frequencies, though with a somewhat softer-sounding treble region. This was an improvement with recordings whose high frequencies were a little hot, such as the DSD64 transfer of Ella Fitzgerald and Louis Armstrong's 1956 album *Ella & Louis* (Verve/Acoustic Sounds), in which Armstrong's solo trumpet at the start of "Tenderly" is balanced on the shrill side. But the Arcam's midrange still managed to pay homage to Ella's voice—what a superb instrument she had—with the images on this mono recording firmly locked in place between the speakers.

Through the P49, with a modern stereo recording—"Baby, Now That I've Found You," from Alison Krauss + Union Station's *Live* (DSD64 ripped from Rounder SACD)—the images were set farther behind the speakers than they'd been with the Pass Labs monos, but with perhaps not quite the same soundstage depth. This was with the Arcam used as a stereo amplifier; as I had two samples, I set up each to drive the YGA Carmel speakers in biamped mode—*i.e.*, one channel of each amp driving the tweeter and the other the woofer. The soundstage remained behind the speakers, but the depth did increase slightly, almost to the extent I experienced with the Pass Labs monos.

I set up the Parasound Halo amplifi-

ers in the system while I was auditioning contenders for this issue's "Recording of the Month," the live *Hommage à Eberhard Weber* (CD, ECM 2463) taking the honors. I hadn't heard the Halo JC 1s for a long time, but listening to this CD reminded me that I'd agreed with Michael Fremer's verdict: the JC 1 was "lightning-fast, delivering transients and sibilants with a speed and clarity that were positively addictive," and a "bottom end [that] was equally impressive and subtly drawn." Although Mikey had concluded that "perhaps some listeners will find the JC 1 too refined and perhaps a tad polite," the Parasounds were not too polite with the YGA speakers. Their sound was, if anything, a touch too vigorous—though I'd matched levels, the JC 1s sounded a little louder than the Arcam in normal stereo mode—which I resolved by switching to the somewhat mellow KEF LS50s. With this magnificently reverberant album, the Parasounds threw a slightly deeper soundstage through the KEFs.

With Rachmaninoff's Piano Concerto 2, Dejan Lazic's piano sounded slightly more incisive than it had with the Arcam; and the subbass grumblings in James Blake's "Limit to Your Love" sounded more subterranean with the Parasounds, with a slightly better sense of pitch definition than the Arcam or the Pass Labs. Using the Arcam as a pair of monoblocks in biamped mode brought their low-frequency performance closer to that of the Halo JC 1s, but the Parasounds still had a slight edge in this regard.

Conclusion

"Arcam's P49 power amplifier represents the pinnacle of Arcam's audio engineering," states Arcam's press release. "We set out to incorporate everything we have learnt in almost 40 years to deliver a power amplifier that will set new standards and provide class-leading sound quality for the best possible reproduction of your music."

That's a big promise for a dollar under \$5000. But while some other amplifiers sound better in one or more aspects, the FMJ P49 sits at that sweet spot defined by the Law of Diminishing Returns: to get more performance, customers will have to dig a *lot* deeper into their pockets. Highly recommended. ■

³ See www.stereophile.com/content/pass-labs-xa605-monoblock-power-amplifier.

⁴ See www.stereophile.com/solidpoweramps/774/index.html.

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HERB REICHERT

Parasound Halo Integrated

INTEGRATED AMPLIFIER



Like baking bread or watering my garden, playing records in my monk's cell is an expression of my devotion to living mindfully. It is part of my search for identity and comfort. It shows me how my thoughts, feelings, and poetic imagination fit in with yours, Keith Jarrett's, and everyone else's. The only problem: Often, the stereo components that most enhance my experiences of devotion and identity are not those that I can sincerely declare to be the most accurate or neutral.

Actually, there's another problem: I am an audiophile who only minimally comprehends what *accurate* and *neutral* actually mean in terms of reproduced sound. But! *Stereophile's* founder and prototypical audio sage, the late J. Gordon Holt, thoughtfully defined both in his "Sounds Like? An Audio Glossary":¹

accuracy The degree to which the output signal from a component or system is perceived as replicating the sonic

qualities of its input signal. An accurate device reproduces what is on the recording, which may or may not be an accurate representation of the original sound. [my emphases] **neutral** Free from coloration.

Almost perversely, JGH's definition of *accuracy* requires 100% speculation on the part of the critical listener. All I can conclude from this definition is that, if I listen to the same recording through a number of different high-end systems, I *might* develop an imaginary construct of what was written on the disc.

His definition of *neutral* is easier. I learned it from Goldilocks: not too warm, not too cool, not too bright or dull, nor too hard or soft, etc. In short, just right.

I asked my Facebook friends what they thought is meant by a reviewer who describes a component's sound as

1 See www.stereophile.com/reference/50/index.html.

SPECIFICATIONS

Description 2.1-channel, solid-state integrated amplifier. Analog inputs: RCA (5), XLR (1), minijack (3.5mm). Theater/Sub: RCA (2), XLR (1). Digital inputs: optical, coaxial, USB. Headphone output: 3.5mm. Power output (0.9% THD+N): 160Wpc into 8 ohms (22.0dBW), 270Wpc into 4 ohms

(21.2dBW). Frequency response: 10Hz-100kHz, +0/-3dB. Total harmonic distortion (THD): <0.01%, average listening levels; <0.05%, 160Wpc into 8 ohms. Channel separation: >50dB at 20kHz, >70dB at 1kHz. Signal/noise ratio, A-weighted: line in, 103dB (input shorted); digital in,

106dB. Input impedance: 47k ohms (phono input MM), 100 ohms or 47k ohms (phono input MC).

Dimensions 17" (437mm) W by 5.9" (150mm) H by 16.1" (413mm) D. Weight: 33 lbs (15kg) net, 44.9 lbs (20.4kg) shipping.

Finishes Black, Silver.

Serial number of unit

reviewed 10042.

Price \$2495. Approximate number of dealers: 200+.

Manufacturer

Parasound Products, Inc., 2250 McKinnon Avenue, San Francisco, CA 94124. Tel: (415) 397-7100. Fax: (415) 397-0144.

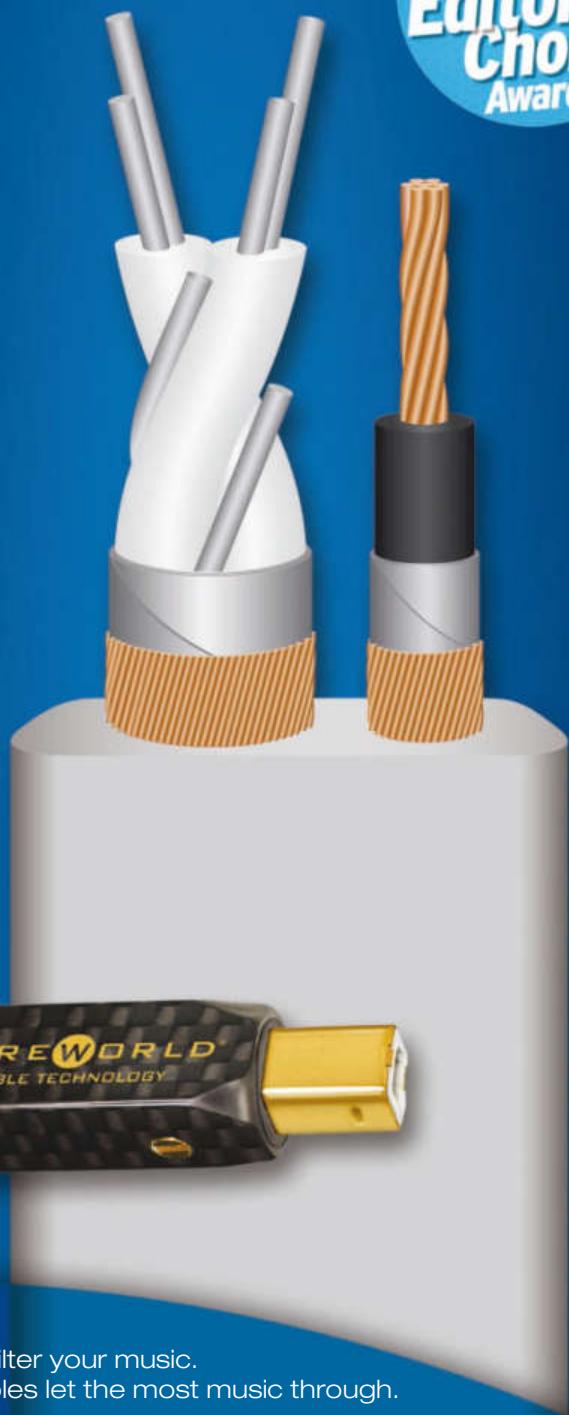
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DNA Helix U.S. Patent #8,569,627



“neutral.” Surprisingly, many of them said, “boring or dull.” Some, agreeing with Goldilocks, thought it meant “just right.” But several said that *neutral* means “no personality.” I gulped.

I read John Marks’s excellent column in the August 2015 issue,² in which he addressed the question “Should a loudspeaker have a personality?” I thought, *How can it not? How can any audio component not have a personality?*

Then I began playing some favorite recordings with Parasound’s new Halo Integrated amplifier (\$2495). I kept playing discs and listening for a Parasound personality—an obvious sonic signature—but I couldn’t hear one. This lack of a Parasound sound threw me off my reviewer game. Frustrated, and for the sake of this review, I was forced to speculate about the nature of *accurate* and *neutral*.

Description

Since 1981, Richard Schram, founder and CEO of Parasound Products, Inc., has built the brand on making audio components that look and sound expensive, but sell for much less than it appears they should. Schram has also built Parasound on the substantial legend of audio engineer John Curl, designer of such enduringly influential classics as the Vendetta Research SCP-2 phono preamplifier. The SCP-2 was a high-quality, high-gain, low-noise RIAA stage from

the 1980s that probably spawned the oft-abused reviewer term: ink-black backgrounds.

Parasound products are built in Taiwan. In an online report posted in July 2014 by Jason Victor Serinus, one factory there “has been engaged in continuous production of Parasound products since 1982. Quality is checked both in Taiwan and the United States, which assures that the products maintain their reputation for quality in the 60 countries in which they are sold.”³

The Halo Integrated, which measures 17.25" wide by 16.25" deep by 5.875" high and weighs 33 lbs., is the first new integrated amplifier from Parasound since 1986. Its class-A/AB output section, which provides 160Wpc into 8 ohms, is based on bipolar transistors, while its input and driver stages use JFETs and MOSFETs, respectively. Like the Halo P 5 2.1-channel D/A preamplifier,⁴ the Integrated has built-in, variable-frequency high- and low-pass crossovers, a home-theater bypass input for integration into a surround-sound system, and a front-panel level control for a subwoofer. According to Schram, “The Halo Integrated is the only amp on the market that provides a sub channel/

2 See www.stereophile.com/content/fifth-element-92.

3 See www.stereophile.com/content/parasound-shares-its-strengths-san-jose.

4 See Art Dudley’s review of the Halo P 5 in the April 2014 issue; www.stereophile.com/content/parasound-halo-p-5-21-channel-da-preamplifier.

MEASUREMENTS

I measured the Parasound Halo Integrated using my Audio Precision SYS2722 system (see www.ap.com, and the January 2008 “As We See It” at www.stereophile.com/content/measurements-maps-precision). As usual, I preconditioned the amplifier before measuring it by running both channels at one-third power into 8 ohms for an hour. At the end of that period, the top panel was hot, reaching 137.4°F (58.6°C) by the vents over the internal heatsinks.

I began by looking at the Halo’s phono-stage performance, taking the amplifier’s output from the fixed-level Rec Out jacks with the volume control at its minimum setting, so that the high-level tests wouldn’t overload the power-amplifier stage. With the phono input set to moving magnet, the voltage gain was 34.2dB; set to moving coil, it was 53.8dB. Each value is appropriate for that type of phono cartridge. Measured at the speaker outputs with the volume control at its maximum setting, these phono-stage gains were 64 and 94dB, respectively. Both settings inverted absolute polarity. Set to 47k ohms, the input impedance was 47k ohms at 20Hz, 44.5k ohms at 1kHz, and 38k ohms at 20kHz; with this setting at 100 ohms, the input impedance measured 100 ohms at all audio frequencies.

The RIAA response error was respectably low (fig.1), especially in the left channel (blue trace), but both channels can be seen to apply the so-called “Neumann fourth pole,” resulting in an output that is up 9dB at 100kHz.

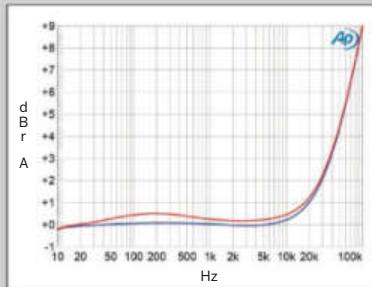


Fig.1 Parasound Halo Integrated, phono input, response with RIAA correction (left channel blue, right red) (1dB/vertical div.).

While some justify this modification to the RIAA curve on theoretical grounds, I don’t like to see it because it boosts the ultrasonic content of unequalized signals such as record ticks and clicks. Channel separation was high, at >70dB

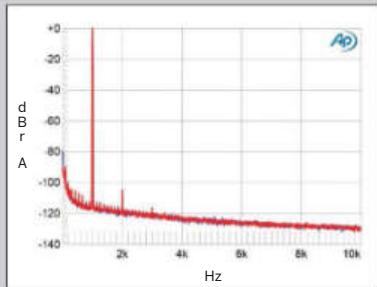


Fig.2 Parasound Halo Integrated, phono input, spectrum of 1kHz sinewave, DC-10kHz, at 1V into 100k ohms (linear frequency scale).

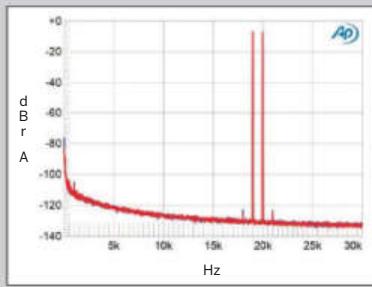


Fig.3 Parasound Halo Integrated, phono input, HF intermodulation spectrum, DC-30kHz, 19+20kHz at 1V peak into 100k ohms (linear frequency scale).

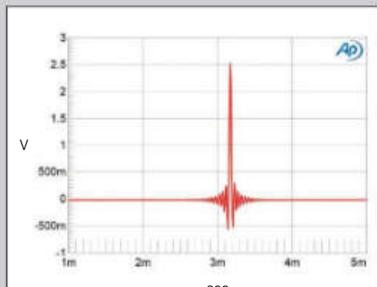


Fig.4 Parasound Halo Integrated, digital input, impulse response at 44.1kHz (4ms time window).

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out for the two-channel analog and the digital sources that are connected to it."

When I asked to review the Halo, Schram was a little worried: "Herb, I thought you only liked integrated amplifiers that come stripped down, with features like DACs, phono stages, and headphone amps going à la carte." Truth is, I like *any* integrated that plays music enjoyably. If, like the Halo, its standard equipment includes a moving-magnet/moving-coil phono stage, a discrete headphone amplifier, and a 32-bit ESS Sabre³² DAC chip, then please, Mr. Schram, make it better than what I can afford to add on my own. (Is that a gauntlet I see lying on the floor?)

The Halo's phono stage has RCA inputs with gain that's switch-selectable for MM or MC, and with a choice of loading MC cartridges with 100 or 47k ohms. I like having two



The Halo Integrated's rear panel has inputs and outputs, aplenty, and subwoofer controls.

turntables and sometimes two or three external computer/DAC/CD sources; gloriously, the Halo Integrated's rear panel has five line-level inputs (RCA). There are also an XLR input (when used, this replaces the fifth RCA input), and stereo line-level outputs and a subwoofer output—all balanced, all XLRs.

The Halo's USB, optical, and coaxial digital inputs are selectable from the front panel: That's a lot of inputs. Also on the front panel, starting from the left, are: a 3.5mm headphone jack, a 3.5mm Aux input for a portable MP3

measurements, continued

above 1kHz, and the signal/noise ratio, measured with the inputs shorted and a 22Hz-22kHz bandwidth, was good, at 69.8dB (MM, ref. 1kHz at 5mV) and 54dB (MC, ref. 1kHz at 500 μ V). A-weighting respectively increased these ratios to 69.9 and 61dB.

The Halo's phono stage was extremely linear. Even with a 1kHz signal at 20mV, the MM setting produced just a tiny amount of second-harmonic distortion (fig.2); and with an equal mix of 19 and 20kHz tones at the same equivalent level, there was a negligible amount of intermodulation distortion (fig.3). Correlating with this excellent linearity, the phono-stage overload margin was also excellent, at around 25dB across the audioband at both MM and MC settings.

Turning to the digital inputs, again I assessed their performance at the fixed output jacks. Using my MacBook Pro on battery power to look at the USB input, this operated in the optimal isochronous asynchronous mode, and the Halo was identified as "PARASOUND—Digital Audio" with the manufacturer string "VIA Technologies Inc." The USB input accepted sample rates up to 384kHz, plus, unusually, 705.6kHz, and integer bit depths up to 32. The TosLink input accepted data with a 192kHz sample rate, which is commendable. All digital inputs preserved absolute polarity (*i.e.*, were non-inverting).

A full-scale tone at 1kHz resulted in

an analog output of 1.92V at the fixed output. Because a tone at -20dBFS with the volume control at its maximum setting produced 18.7V at the speaker outputs, measured into 8 ohms, the digital inputs shouldn't be

used with the volume control above 3:00 or so. The reconstruction filter's impulse response is shown in fig.3; the filter is a conventional, finite-impulse-response type with a response that

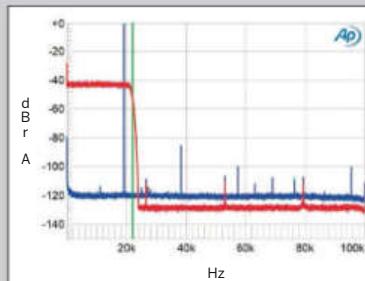


Fig.5 Parasound Halo Integrated, digital input, wideband spectrum of white noise at -4dBFS (left channel red, right magenta) and 19.1kHz tone at 0dBFS (left blue, right cyan), with data sampled at 44.1kHz (20dB/vertical div.).

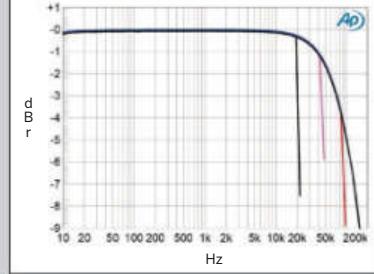


Fig.6 Parasound Halo Integrated, digital input, frequency response at -12dBFS into 100 ohms with data sampled at: 44.1kHz (left channel green, right gray), 96kHz (left cyan, right magenta), 192kHz (left blue, right red), 384kHz (left gray, right blue) (1dB/vertical div.).

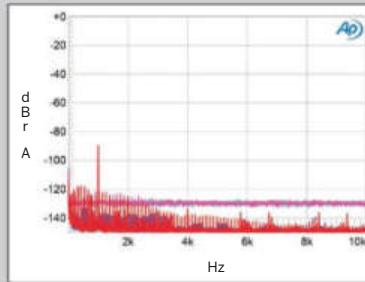


Fig.7 Parasound Halo Integrated, digital input, spectrum with noise and spurious of dithered 1kHz tone at -90dBFS with: 16-bit data (left channel cyan, right magenta), 24-bit data (left blue, right red) (20dB/vertical div.).

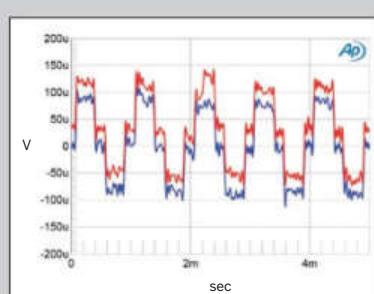


Fig.8 Parasound Halo Integrated, digital input, waveform of undithered 1kHz sinewave at -90.31dBFS, 16-bit data (left channel blue, right red).

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player or mobile phone, and Bass and Treble controls and their defeat button. On the right is a small Input knob: As this is rotated, 11 tiny blue LEDs light up in sequence below a row of 11 minutely labeled input choices: Aux, 1, 2, 3, 4, 5, Phono, Opt, Coax, USB, Bypass. The labels are so small (2mm high) that I needed a flashlight and a jeweler's loupe to see which input I'd selected. Next to the Input knob are the Sub Level and Balance controls. I love balance knobs—I call them imaging controls—but why oh why does the Halo's balance control *not* appear on its blue-lit remote handset, so that I could fine-tune it while listening?

Speaking of Listening

Throughout my listening for this review, the Halo Integrated played with generous measures of that afore-defined *neutrality*. What little personality it had remained hidden, like a cat in the bushes—which made it easy to hear the sonic qualities of every associated component I used with it.

Moving-Magnet Phono Stage

The Halo's MM stage sounded quiet and gentle. (I'd begun to type *soft*, but *gentle* is more accurate.) I used it extensively with two combinations of turntable, tonearm, and cartridge:

the Technics SL1200MK2, SME M2-9, and Soundsmith Carmen; and the Acoustic Signature Wow XL, TA-1000, and Ortofon 2M Black. Both cartridges were fastidiously fine-tuned for correct vertical tracking angle (VTA) and stylus rake angle (SRA), but even so, the Halo's MM stage imparted a slightly hesitant, placid touch to all transients.

But enjoyably, on the 1981 Munich concert included in Keith Jarrett's *Concerts: Bregenz München* (3 LPs, ECM-3-1227), the Parasound reproduced the pianist's vocalizations, as well as the applause and audience sounds, with an easy, intimate realism that I think all Jarrett enthusiasts would appreciate. (During a recent solo performance at Carnegie Hall, Jarrett urged his fans to embrace his LP catalogue: "I believe my work is best understood by listening to the LPs.")

Jarrett's close-miked foot stoms and spontaneous vocal provocations had extremely natural tone through the Halo Integrated. I love Jarrett's music, but I feel I have only begun to grasp the bigger picture of what he aspires to creatively. The Halo's MM phono stage seemed to *figuratively* slow his music just enough to let me examine his improvisations from a more intimate vantage. Dynamics, especially micro-dynamics, were enjoyably natural; their well-scaled action made me feel closer than usual to Jarrett's disquieting art.

measurements, continued

rolls off rapidly above 21kHz with 44.1kHz-sampled data (fig.4, red and magenta traces). With a full-scale tone at 19.1kHz (blue, cyan), the third harmonic lies at -86dB (0.005%), suggesting that the digital circuitry offers low levels of harmonic distortion. This was confirmed by other tests (not shown). Fig.6 shows the Halo's digital-input frequency response with sample rates of 44.1, 96, and 192kHz via the TosLink input, and 384kHz via the USB input. The ultrasonic output conforms to the same gentle rolloff, but rolls off sharply just below each Nyquist frequency (half the sample rate) at the three lower rates. At the 384kHz rate the smooth rolloff continues, reaching -18.5dB at 190kHz.

Channel separation via the digital inputs was good, at >95dB in both directions below 7kHz. Feeding the Halo data representing a 1kHz tone with first 16-bit data (fig.7, cyan and magenta traces), then 24-bit data (blue, red), showed that the increase in bit depth dropped the noise floor by almost 20dB, which suggests that the Halo has better than 19-bit resolution. Repeating these measurements with USB data gave the same result, indicating that the Halo's USB input correctly handles 24-bit data. While many very low-level, power-supply-related spurious can be seen in fig.7, these didn't affect the Halo's accurate reproduction

of an undithered 16-bit tone at exactly -90.31dBFS (fig.8).

Intermodulation distortion via the digital input was negligible (fig.9), as were any jitter-related artifacts with

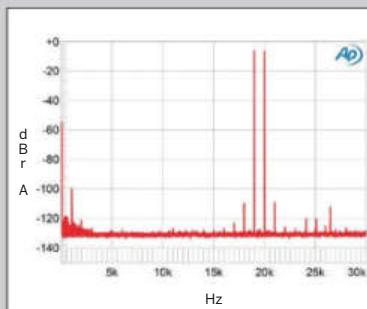


Fig.9 Parasound Halo Integrated, HF intermodulation spectrum, DC-24kHz, 19+20kHz at 40W peak into 8 ohms (linear frequency scale).

both 16- and 24-bit J-Test data (fig.10).

Turning to the Halo's behavior via its line inputs and measured at the speaker outputs, the maximum voltage gain at 1kHz was 39.6dB into 8 ohms

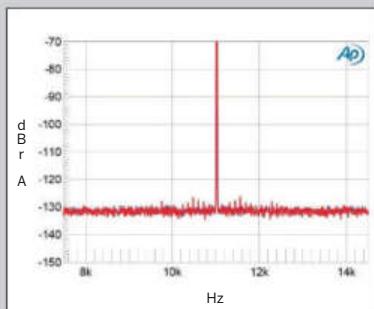


Fig.10 Parasound Halo Integrated, digital input, high-resolution jitter spectrum of analog output signal, 11.025kHz at -6dBFS, sampled at 44.1kHz with LSB toggled at 229Hz: 24-bit data from SYS2722 via TosLink (left channel blue, right red). Center frequency of trace, 11.025kHz; frequency range, 43.5kHz.

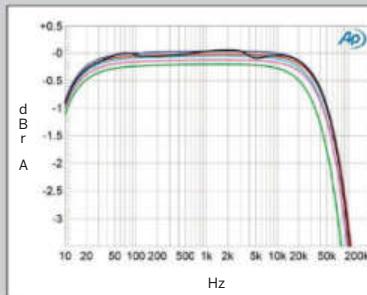


Fig.11 Parasound Halo Integrated, volume control set to maximum, frequency response at 2.83V into: simulated loudspeaker load (gray), 8 ohms (left channel blue, right red), 4 ohms (left cyan, right magenta), 2 ohms (green) (0.5dB/vertical div.).

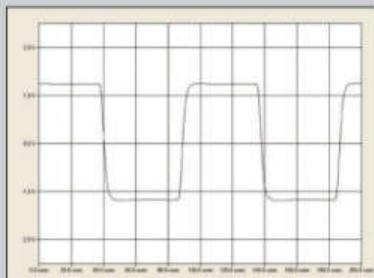


Fig.12 Parasound Halo Integrated, small-signal, 10kHz squarewave into 8 ohms.

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Moving-Coil Phono Stage

In contrast to its MM stage's gentleness, the Halo Integrated's MC stage exhibited more punch and openness. Macro dynamics and inner detail dramatically increased. Using Jasmine Audio's Turtle and Zu's Denon DL-103 MC cartridges, I played John Cage's Concerto for Prepared Piano and Orchestra, with pianist Yuji Takahashi, and Lukas Foss conducting the Buffalo Philharmonic (LP, Nonesuch H-71202). Cage believed (as I do) that art continues to be vigorous and useful as long as it continues to be difficult and irritating. I never actually find Cage irritating, but with the Halo Integrated, this razor-sharp concerto startled me, and fastened my attention on a simple musical question: What could possibly happen next?

Over and over, this recording, engineered by Marc J. Aubort, parlayed the unexpected into the marvelous. It riveted my awareness on the deep volume of the recording venue. With my mind's eye, I watched as bottle rockets of harmonic energy shot from the piano strings to the hall's walls and back, on the way combining with the sounds of



Crimson peek: inside the Halo Integrated.

measurements, continued

via the balanced jacks, and 39.7dB via the unbalanced jacks. The balanced input impedance was 40k ohms across the audioband, and the unbalanced impedance was 24k ohms, again across the audioband. While the balanced input preserved absolute polarity, the unbalanced inputs were inverting.

The output impedance was very low, at 0.09 ohm at 20Hz and 1kHz (including 6' of speaker cable), rising slightly to 0.11 ohm at 20kHz. The modification of the amplifier's frequency response by the interaction between this output impedance and that of our standard simulated loudspeaker was therefore very small (fig.11, gray trace). This graph indicates that the Halo has a wide bandwidth, the response into 8 ohms reaching -3dB at 100kHz. As a result, the Parasound's reproduction of a 10kHz squarewave was excellent (fig.12), with short risetimes and no overshoot or ringing. The traces in fig.11 were taken with the volume control at its maximum setting. Repeating the measurements at lower settings preserved both the close channel matching and the wide bandwidth.

There was an audible 0.36dB insertion loss at 1kHz when the tone controls, set to their central, detented positions, were switched into circuit. Fig.13 shows the effect of the treble and bass controls set to their maximum and minimum settings; these are very similar in behavior to the controls of Parasound's Halo P 5 preamplifier, which Art Dudley reviewed in April 2014.¹

The behavior of the Halo Integrated's subwoofer and crossover controls also look very similar to the P 5's.

Channel separation at 1kHz was good rather than great, at 70dB, decreasing to 50dB at the top of the audioband. The wideband, unweighted S/N ratio, measured with the inputs shorted but the volume control at its

maximum setting, was good, at 73dB ref. 2.83V into 8 ohms. This improved to 78dB when the measurement bandwidth was restricted to the audioband, and to 82.5dB when A-weighted.

Figs. 14 and 15 plot the percentage of THD+noise in the Halo's output as it drove 8 and 4 ohms, respectively. These graphs show that the Parasound

1 See www.stereophile.com/content/parasound-halo-p-5-21-channel-da-preamplifier-measurements.

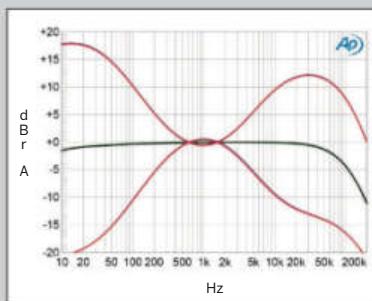


Fig.13 Parasound Halo Integrated, frequency response at 2.83V into 8 ohms with tone controls set to: flat (left channel green, right gray), and maximum and minimum positions (left channel blue, right red).

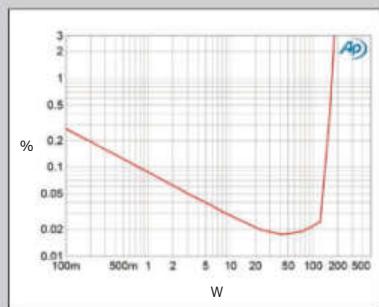


Fig.14 Parasound Halo Integrated, distortion (%) vs 1kHz continuous output power into 8 ohms.

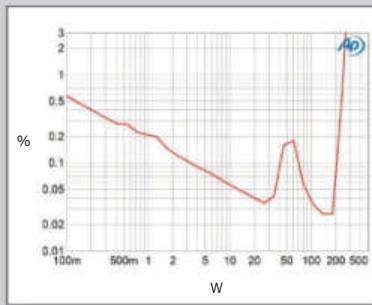


Fig.15 Parasound Halo Integrated, distortion (%) vs 1kHz continuous output power into 4 ohms.

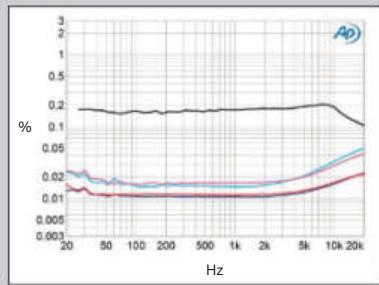
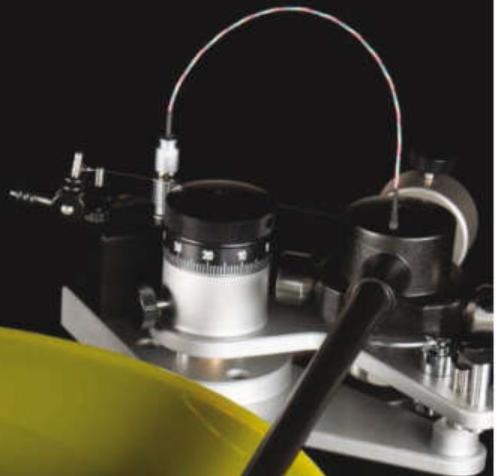


Fig.16 Parasound Halo Integrated, THD+N (%) vs frequency at 20V into: 8 ohms (left channel blue, right red), 4 ohms (left cyan, right magenta).

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the lingering decays of orchestral bursts. My focus ricocheted from inside the piano, near the strings, to the ceiling of Buffalo's Kleinhans Music Hall, where this was recorded in March 1968. Energy swelled and vanished in fascinating ways.

With either MM or MC cartridges, the Halo Integrated's overall sound was spirited, naturally detailed, and alluringly three-dimensional, but clearly lacking in those extra degrees of slam and gratuitous resolution that audiophiles seem to crave.

Listening to Digital

The experiential differences between digital and analog playback can best be compared to the aesthetic differences between machine- and hand-sewn quilts. Each is the product of forms of encryption, decryption, and energy storage that are antithetical to the other. Each type of decryption *feels* significantly different.

The Halo Integrated's ESS Sabre³² DAC chip presented music with a relaxed and *hand-sewn* feel. This effect was especially noticeable with high-resolution music files, which the Halo's DAC delivered as an easy-moving, organic weave of tones and textures.

For three nights straight I played classical and blues CDs, switching like a mad audiophile between the Halo Integrated's DAC and my Halide Design DAC HD (\$550). Each night I grew more impressed with the balance and neutrality of the Halo's decryption. The Halide, which uses a Wolfson WM8716 chip, was always way fun, with great boogie, but generally leaned toward the softer side of neutral. But the modest Halo came surprisingly—and enjoyably—close.

Listening with Loudspeakers

MAGNEPAN .7: "Our amps will drive everything," Parasound designer John Curl likes to brag. They are, he suggests, "designed to pull trailers." Well, the Magnepan .7s are unquestionably heavy, low-impedance, current-hungry trail-

ers that can be pulled only by tractor-like amps. Parasound power amplifiers, such as the Halo JC 1 (the "JC" stands for John Curl), have a longstanding reputation for lying back and smiling as they make Magnepans sing. But when I used the Halo Integrated with the .7s, I didn't smile. I laughed. I had never heard *any* Magnepan speaker move and hustle and boogie and croon as the .7s were now doing in my room. This combination of amp and speakers made for pure audio joy.

Rogue Audio's Sphinx class-D integrated (\$1295) also played the Maggies with fun life and good authority, but with nowhere near the suave beauty and colorful delicacy of the class-A/AB Halo. Halo-Maggie soundstages were enormous and tangible. This duo danced like Fred Astaire and Ginger Rogers, making every tune charming and exhilarating. They played holistically, never drawing my attention to any part of the audioband—except maybe the midrange, which was exceptionally textured and colorful.

KEF LS50: Here, tone character and dynamics were in the center ring. I felt as if the KEF LS50s gave me perhaps the clearest picture of the Halo Integrated's personality: clear and clean, pretty even and steadygoing—not dark or light, not hard or soft. Maybe the most neutral? This pairing *felt* as if it was replicating the sonic qualities of its input signal a little more than the Parasound-Magnepan combo—vocal intelligibility was better—but it wasn't as enjoyable or as emotionally engaging.

FALCON ACOUSTICS LS3/5A: The Halo Integrated drove the Falcon LS3/5A's with ease and precision. The imaging was glorious. Tone character was pure and satisfying. My emotional involvement was higher than with the KEF LS50s. While listening to Susanne Rosenberg, Jean-Lou Descamps, Christophe Deslignes, and Thierry Gomar's medieval-style acoustic folk music on their *Out of Time and Country* (CD, M•A Recordings M080A), I was startled several times by the dynamics of this amp-speaker combi-

measurements, continued

met its specified power of 160Wpc into 8 ohms (22.0dBW) and 270Wpc into 4 ohms (21.2dBW) at 1% THD+N. Fig.16 plots the THD+N percentage against frequency at a fairly high level: 20V, equivalent to 50W into 8 ohms, 100W into 4 ohms, and 200W into 2 ohms. Fig.16 also shows that the amplifier

offers low levels of distortion into the two higher impedances, but begins to stress out into 2 ohms. (The amplifier's protection circuit operated before the 2 ohm sweep was finished.) The distortion signature is strongly third-harmonic in nature (figs. 17 and 18), and intermodulation is also very low,

even at high powers (fig.19).

The headphone output preserved absolute polarity, and was sourced from a 10 ohm impedance.

Like other Halo-series components from Parasound we have reviewed, the Integrated is a well-engineered, well-performing product.—John Atkinson

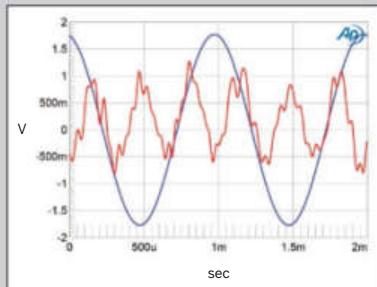


Fig.17 Parasound Halo Integrated, 1kHz waveform at 50W into 8 ohms, 0.012% THD+N (top); distortion and noise waveform with fundamental notched out (bottom, not to scale).

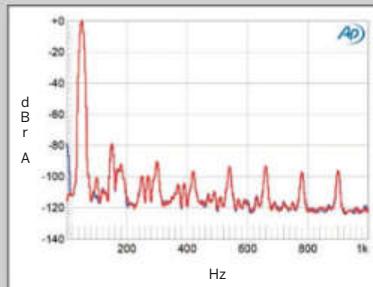


Fig.18 Parasound Halo Integrated, spectrum of 50Hz sinewave, DC-1kHz, at 50W into 8 ohms (linear frequency scale).

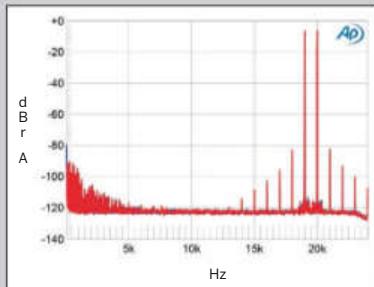


Fig.19 Parasound Halo Integrated, HF intermodulation spectrum, DC-24kHz, 19+20kHz at 100W peak into 4 ohms (linear frequency scale).

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nation. However, the Halo had less instrumental color and vocal richness through the Falcons than had the considerably more expensive Vinnie Rossi LIO (\$7855) or Line Magnetic LM-518IA (\$4450) integrateds, both of which I've recently reviewed.

Headphone amplifier

Because the Halo Integrated has only a 3.5mm headphone jack (why not a 1/4" jack?), I wasn't prepared to take its headphone amp very seriously. When I asked about it, Richard Schram said, "It is an independent amp—no cheezy tapping off the speaker outputs. It is located directly behind the headphone jack and isolated from all the other circuitry." He described it as "class-AB with current feedback architecture," and explained, "It could output 700mA per channel and slew 1300V/ μ s... which prevents odd-order harmonic distortion... that is even more fatiguing with headphones than speakers.... [O]dd higher-order distortion is anathema to John Curl."

I became more interested in the Halo's headphone amp when I discovered that it uses the same output chip as my Burson Conductor headphone amp, which drives every set of headphones I've tried with an uncanny combination of crystalline detail, warrior punch, and breathy sophistication.

Each night I grew more impressed with the balance and neutrality of the Halo's decryption.

You say you believe in accurate and neutral? I say: Listen to AKG's K812 headphones (\$1499). More than any other 'phones I've used, the K812s show me the input signal. At a Chesky Records recording session, I compared them with several other premium high-end 'phones, all fed a live signal from a binaural microphone. It wasn't even close. The K812s delivered an uncanny facsimile of what I experienced sitting with the musicians directly behind the dummy head in the recording studio, a former church.

So: Listening to Willie and Paula Nelson sing a Creedence Clearwater Revival classic—John Fogerty's "Have You Ever Seen the Rain?," from Willie's *To All the Girls* (CD, Columbia/Legacy 88765425862)—I felt that the AKG K812s were giving me the emotionally charged but uncolored, accurate truth. I felt completely connected to the lyrics and the voices' expression—so connected that I choked up and rocked my head uncontrollably. The sound character was rich and strong. I knew that the Halo's headphone amp could make me sing, pump my fist, and cry.

When I asked Schram how the Halo's headphone amp drove high-impedance loads, he channeled John Curl: "It can drive anything—even 600 ohms!" I smiled. I remembered that I could listen to the Halo with both the 32- and 600-ohm versions of Beyerdynamic's excellent, moderately priced, extremely comfortable DT 880 'phones (\$420). Game on.

Through the Halo Integrated, the 32-ohm DT 880s had lots of body-massaging presence and cheek-kissing charm. (Most audiophiles don't realize just how body-massaging and physical a good set of phones can be.) The Halo played Au Revoir Simone's self-produced first album, *Verses of Comfort, Assurance & Salvation* (CD, Moshi Moshi MOSHICD 08) with the same level of artful sincerity and pre-partum expectations this hip girl trio from Brooklyn put into it.

ASSOCIATED EQUIPMENT

Analog Sources Acoustic Signature Wow XL turntable & TA-1000 tonearm; Thorens TD 124 turntable with Abis SA-1.2 tonearm; Technics SL1200MK2 turntable with SME M2-9 tonearm; Jasmine Audio Turtle, Ortofon 2M Black & CG 25 DI II, Shure SC35C, Soundsmith Carmen, Zu Audio DL-103 cartridges.

Digital Sources Halide Design DAC HD DAC, Onkyo Integra DPS-7.2 disc player.

Preamplification Blue Horizon Ideas Profono, Schiit Audio Mani phono stages; Intact Audio step-up transformer.

Integrated Amplifiers Hegel Music Systems H160, Line Magnetic LM-518IA, Rogue Audio Sphinx, Simaudio Moon Evolution 340i.

Headphone Amplifiers Audeze Deckard, Burson Conductor, Schiit Audio Asgard.

Headphones AKG K812, Audeze EL-8, AudioQuest NightHawk, Beyerdynamic DT 880 (32 & 600 ohm), Sony MDR-7520.

Loudspeakers Falcon Acoustics LS3/5A, GoldenEar Technologies Triton 5s, KEF LS50, Magnepan .7.

Cables Interconnect: AudioQuest Cinnamon & Big Sur & Golden Gate, Auditorium 23. Speaker: AudioQuest Type 4, Auditorium 23.

Accessories Sound Anchor stands, Dr. Feickert Analogue cartridge-alignment protractor.—*Herb Reichert*

Then I tried the 600-ohm DT 880s.

I was stunned. The Halo's headphone amp delivered plenty of voltage, which let the high-impedance Beyerdynamics recover so much more microdetail, fine texture, and midrange color that I found myself wishing I were young again and hanging out in that Williamsburg basement studio with Au Revoir Simone's Erika Forster, Heather D'Angelo, and Annie Hart.

The Halo Integrated drove both the 4-ohm Magnepans and the 600-ohm Beyerdynamics with such eager and joyful finesse that I am forced to declare: This trio of reasonably priced hi-fi products might comprise one of the best-ever audiophile systems for under \$5000.

Conclusions

Okay, I lied. The Parasound Halo Integrated is *not* as neutral as I said it was at the beginning. After lots of listening, I realized that it has a recognizable sonic personality: easy flowing, mostly smooth, and decidedly mellow. I imagine a big part of this perceived mellow ness might be a result of John Curl's disdain for odd-order distortion. But don't worry—it's not milquetoast mellow or unwashed-hippy-stoner mellow. It is, instead, an everything's-under-control, don't-worry-now mellow. The Halo played tunes and sang songs as if they mattered. It stuck close to the facts. It was never boring. It frequently enhanced my feelings of devotion and mindfulness.

I believe that J. Gordon Holt would characterize the Parasound Halo Integrated as neutral *and* accurate. Why? Because, with certain extravid recordings, I *perceived* the Halo as tracking the input signal pretty close to the feeling of master tape. Likewise, it was neutral, in that well-considered, just-right Goldilocks way: It was never *too* anything—except, maybe, *too inexpensive!* ■

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Yeah, but it's only USB, right? Actually it has optical and USB inputs, allowing you to connect both your computer and another A/V source.

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Sounds like I should take a listen... Cool, let's go!

www.ayre.com/dealers.htm

JON IVERSON

Chord Electronics Hugo TT

D/A HEADPHONE AMPLIFIER



The British company Chord Electronics has always seemed to me to be audio's crazy uncle: Crazy like a fox, maybe, but definitely marching to their own tune. Their casework design often borders on the gratuitously provocative, challenging audiophiles' ideas about good taste. Yet many of my audio pals swear by the sound of Chord components, and I've heard them shine in many respectable showrooms.

The lineage of Chord's new Hugo TT DAC and headphone amplifier can be traced through several typically idiosyncratic Chord products, including the QBD76 HDSD DAC, Chordette QuteHD DAC, and Hugo portable DACs. I've noticed each of these products as, one by one, they've appeared at successive Consumer Electronics Shows—but who does any serious listening in those crowded hotel rooms? So when the Hugo TT (\$4795) became available for review, I jumped at the chance to hear what crazy sounds like.

The Box

The first thing I noticed was that the Hugo TT (for Table Top, according to Chord) looks and feels like a solid chunk of metal—tapping its case at various points produced little to

The Hugo TT looks and feels like a solid chunk of metal.

no resonance. Chord has cleverly designed the top and bottom halves of the case to fit together so well,

the thin seam between them is barely noticeable. The TT comes in black or silver; my review sample was finished in handsome black.

The next thing I observed was how much more heavy and boxlike the Hugo TT is than many other Chord designs. The owner's manual claims that it weighs 6.6 lbs, but I'd have guessed at least 10. So I weighed it. They're right. The Hugo's smallish size (9.2" wide by 1.8" high by 8.8" deep) fools the eye.

From there things start to go crazy-uncle. Two 2"-wide depressions are cut into the otherwise rectilinear case: one in the middle of the top plate, toward the rear, and the other scalloped out of the front panel's top edge. From the bottom of the latter, a green-lettered alphanumeric display peers up like a big eye. Eight smaller divots of various sizes, all but two of them circular, are scattered across the front panel: buttons, jacks, a sensor, a switch, and a logo, all recessed. Other than the jacks on the rear panel, nothing protrudes

SPECIFICATIONS

Description Desktop D/A converter and headphone amplifier with Bluetooth receiver. Inputs: optical TosLink (24/192), coaxial RCA (24/384), driverless USB (16/44/48), HD USB (32/384, DSD128), A2DP/ aptX Bluetooth (16/44/48). Outputs: two 1/4" (6.35mm) headphone jacks, 1/8"

(3.5mm) headphone jack, 1 pair stereo phono (RCA), 1 pair balanced (XLR). Power supply: 12V 0.5A. Lots of multicolored lights. No other specifications supplied.

Dimensions 9.2" (235mm) W by 1.8" (45mm) H by 8.8" (225mm) D. Weight: 6.6 lbs (3kg).

Finishes Black, Silver.

Serial number of unit reviewed 25831.

Price \$4795. Approximate number of dealers: 50. **Warranty**: 3 years.

Manufacturer Chord Electronics Ltd., The Pumphouse, Farleigh Bridge, Farleigh Lane, East Farleigh, Kent ME16 9NB, England, UK. Tel: (44) (0)1622-721444.

Fax: (44) (0)1622-721555.

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www.chordelectronics.co.uk.

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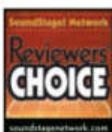
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Marc Mickelson, The Audio Beat February 2010 (USA)

from any part of the case, giving the Hugo a sleek, sturdy profile that, in black, looks a little mysterious.

Starting at the left of the front panel: Below the alphanumeric display are two small, shiny metal buttons, labeled IP and X-PHD, for Input and Cross-feed (more about the latter below). Then comes the remote-control sensor. At the center is the Chord logo, and below it the Power switch. To their right are three headphone jacks: a 3.5mm (1/8") at the center of a recess wide enough to accommodate a right-angle plug, followed by two 1/4" jacks. All three jacks can be used simultaneously, and can handle headphones of impedances from four to several hundred ohms.

Embedded at the bottom of the scallop on the top plate is a marble of sand-blasted glass. This is your volume control, which changes color as it's rolled one way or the other: Rolling it to the right turns the volume down, and rolling it to the left turns it up. (That proved a tad counterintuitive for me: I'm used to turning a volume knob rightward to *raise* the volume.) The name *Table Top* should be taken literally: You wouldn't want to stack this DAC in a typical equipment rack unless you could clearly see and access the marble—or



Return to normalcy:
the Hugo's rear panel.

The Hugo TT combines a custom-made input module with the Bluetooth aptX codec.

plan to use only the remote.

Finally, in the middle of the top plate, just in front of the volume control, is a circular cutout with a clear lens: This lets you see a bit of circuitry, as well as a series of multi-colored LEDs of various function, chief among which are color-coded sampling-rate indicators. Inside the Hugo TT, red stands for 44.1kHz; as resolution increases, the LEDs progress through the color spectrum—various yellows, greens, and blues—all the way up to a neutral white glow that signifies DSD. I had a heck of a time distinguishing the green of 96kHz from the yellowish-green of 88.2kHz, but the other colors were more distinct, and were easy to match to the chart in the manual.

MEASUREMENTS

I measured the Chord Hugo TT with my Audio Precision SYS2722 system (see www.ap.com and the January 2008 "As We See It," <http://tinyurl.com/4ffpv4>). Sources were S/PDIF on TosLink and coaxial from the SYS2722, and USB from my 2012 MacBook Pro running on battery power. (I didn't test the Bluetooth performance.) Macintosh's USB Prober utility reported the Chord's product string as "HugoTT" from "Chord Electronics Ltd," and confirmed that the USB port operated in the optimal isochronous asynchronous mode. Except where noted, all measurements were taken from the Chord's balanced outputs.

With the volume set to its maxi-

mum, the Hugo TT clipped with a 1kHz tone at -17dBFS from all of its outputs. The maximum output level was 5.85V from the balanced outputs, 4.78V from the unbalanced RCA jacks and headphone outputs. All three outputs preserved absolute polarity (ie, were non-inverting). (The XLR jacks are wired with pin 2 hot.) The output impedance from the RCA and headphone jacks was extremely low, <1 ohm at all audio frequencies, while the balanced outputs were sourced from just under 200 ohms, which is still usefully low.

The Chord's impulse response with 44.1kHz-sampled data (fig.1) indicates that the digital reconstruction filter

is a time-symmetrical FIR type, but with more taps than usual. (Compare this graph with the Parasound Halo's impulse response elsewhere in this issue.) Wideband spectral analysis of the Hugo TT's output while it decoded 44.1kHz-sampled white noise at -4dBFS (fig.2, red and magenta traces) reveals that the reconstruction filter rolls off rapidly above 22kHz and very quickly reaches the stopband, about 2kHz higher than the Nyquist frequency (half the sample rate, green vertical line)! The aliasing product at 25kHz of a full-scale 19.1kHz tone (blue and cyan

1 This test was suggested to me by Jürgen Reis, chief engineer of MBL.

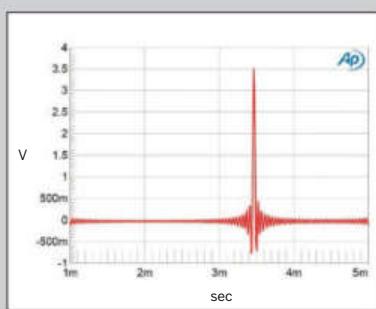


Fig.1 Chord Hugo TT, impulse response at 44.1kHz (4ms time window).

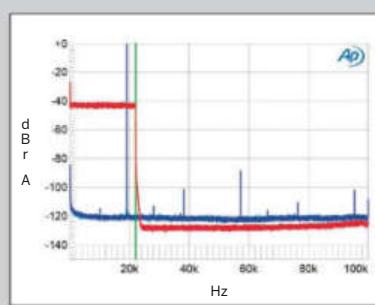


Fig.2 Chord Hugo TT, wideband spectrum of white noise at -4dBFS (left channel red, right magenta) and 19.1kHz tone at 0dBFS (left blue, right cyan), with data sampled at 44.1kHz (20dB/vertical div.).

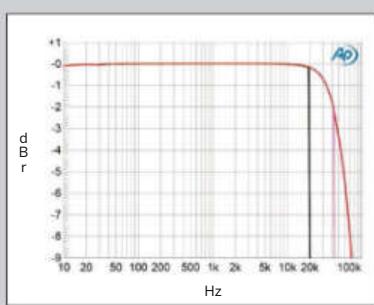


Fig.3 Chord Hugo TT, frequency response at -12dBFS into 100k ohms with data sampled at: 44.1kHz (left channel green, right gray), 96kHz (left cyan, right magenta), 192kHz (left blue, right red) (1dB/vertical div.).

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Powering up the Hugo TT triggered a light show of changing colors. I'm still trying to square the borderline psychedelic design of the Hugo (and many other Chord products) with the cool, level-headed demeanor of the various Chord principals I've met. So far, what I've come up with is hardly news: The British mind, like that of your crazy uncle, is a complicated thing.

Back (and side) of the Box

The Hugo TT's control layout may be crazy, but its rear panel is a return to normalcy. From left to right are jacks for: the DC power supply, left and right balanced (XLR) and unbalanced (RCA) outputs, a coaxial jack that supports sample rates up to 384kHz (BNC, convertible to standard S/PDIF RCA using an adapter, which is what I used with my Cardas S/PDIF cable), and an optical jack that supports up to 192kHz.

At the far right are two galvanically isolated USB Type B jacks, marked SD (Standard Definition) and HD (High Definition). The SD input supports up to 48kHz and requires no drivers with any source, including an iPad or iPhone. The HD jack, which I used for all of my listening, is asynchronous and employs Chord's custom digital clock. Sources supported include 384kHz PCM/DXD, as well as DSD64 and DSD128 in DoP format. The Hugo TT required no drivers to work with my Apple MacBook Pro

laptop running the Roon playback software (Roon supports DSD). Although I didn't test it, Chord notes that for the HD input to work with Windows, the Hugo requires the installation of drivers from the included USB stick—after which it supports sample rates up to 384kHz.

Although use of the jacks is pretty straightforward, their labels are engraved but not painted onto the rear panel; on the black finish they're hard to read, unless you hold the Hugo at just the right angle to the light.

Finally, the Hugo TT combines a custom-made input module with the Bluetooth aptX codec for wireless capability, offering convenience at the expense of ultimate sound quality. At the midpoint of the Hugo's left side panel is a relatively large cutout in the shape of a half cylinder, encased in translucent-black plastic, in which resides the Bluetooth antenna. I tested Bluetooth operation to a distance of about 70' with an iPhone 6, and it worked great; Chord claims the range extends to 150'. Although it sounded pretty close to a CD stream, this is a compressed signal—great for parties, but not recommended for critical listening if you can add a wire.

Control the Box

In my review of Rega Research's DAC-R in the August 2015 issue,¹ I lightly roasted the company for the DAC-R's

¹ See www.stereophile.com/content/rega-research-dac-r-da-processor.

measurements, continued

traces) is completely suppressed, and the harmonics of this tone all lie at or below -90dB.

Fig.3 shows the frequency response of the Chord with data sampled at 44.1kHz (gray and green traces), 96kHz (cyan, magenta), and 192kHz (blue, red). The audioband response is perfectly flat, with no ripples, and the ultrasonic output sharply rolls off close to the lower two Nyquist frequencies. At the 192kHz rate, the rolloff continues the 96kHz characteristic, reaching -7dB at 70kHz. When I measured the response with 384kHz-sampled data via USB, the ultrasonic rolloff was basically identical to that with 192kHz data below 100kHz, and reached -29dB

at 120kHz rather than closer to the 192kHz Nyquist frequency. This very probably doesn't matter. Channel separation with Crossfeed disabled (not shown) was superb, at >115dB below 1kHz, and still 96dB (L-R) and 100dB (R-L) at 20kHz.

The Chord excelled with my usual test for resolution, in which I feed the device under test a dithered 1kHz tone at -90dBFS with first 16- and then 24-bit data. The cyan and magenta traces in fig.4 were taken with 16-bit data. The spectral line that represents the 1kHz tone peaks at exactly -90dBFS, implying negligible linearity error, and the noise floor is actually that of the dither used to encode the signal. With 24-bit

data (blue and red traces), the noise floor drops by around 24dB—in fact, I've had to expand the vertical scale of this graph to -160dB to show the traces—which indicates that the Chord has at least 20-bit resolution—one of the best I have measured. This graph was taken with S/PDIF data; repeating it with USB gave an identical result, revealing that the Chord correctly handles high-resolution data via USB.

With an undithered 16-bit tone at exactly -90.31dBFS (fig.5), the high resolution and low level of analog noise allowed the three DC voltage levels described by this signal to be readily resolved, although there is about 60µV of positive DC offset visible in this

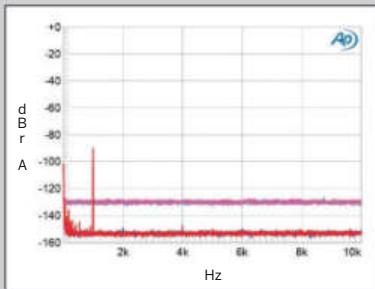


Fig.4 Chord Hugo TT, spectrum with noise and spuriae of dithered 1kHz tone at -90dBFS with: 16-bit data (left channel cyan, right magenta), 24-bit data (left blue, right red) (20dB/vertical div.).

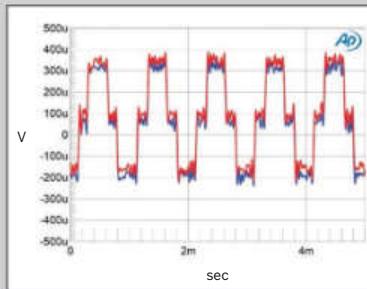


Fig.5 Chord Hugo TT, waveform of undithered 1kHz sinewave at -90.31dBFS, 16-bit data (left channel blue, right red).

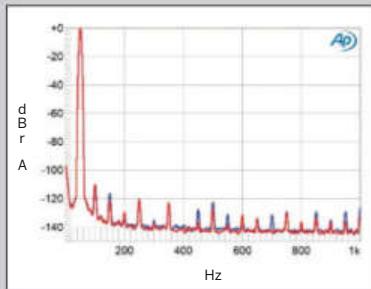


Fig.6 Chord Hugo TT, spectrum of 50Hz sinewave, DC-1kHz, at 0dBFS into 100k ohms (left channel blue, right red; linear frequency scale).



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Best Sound

2012 New York



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2012 Northern California



Gold Show award

2012 Tone Audio magazine



Top Tone award

2013 Portugal



Product of the year

2013 Guangzhou Audio Show



Analog product of the year

2014 Chicago



Gold Show award

2014 CES



Hot Product



2 Gold Show awards



Favorite Analogue

2014 RMAF



Top 5 systems



Gold Show award



Oasis award

2014 Newport Beach



Oasis award



Best of Show

2015 CES



Gold Show award



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2015 Chicago



Best sound (cost no object)



Oasis award



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multibutton remote control, which is useful only if you also own *other* Rega components. The Hugo TT's remote is also festooned with buttons you can't use unless you buy other Chord products—but at least they've included all of the DAC's essential functions: Input, Volume, Mute, and numbered shortcuts to the inputs (very handy when comparing sources).

The remote handset is made of aluminum alloy, and has little rubber feet. About the size of and heft of a solid-state drive, it's gorgeous, and comfortable to hold. As on the Hugo TT itself, each button occupies its own little recess, and requires direct aim of a fingertip: no accidental volume changes when someone sets a book on it, although firing off a command is a little tougher than with the average remote. One quirk: The Chord's Input selection was sometimes triggered by the remote for my Oppo BDP-103 universal disc player. Until I figured it out, I thought the TT had a bug that was making it randomly switch inputs.

Also worth noting: During its power-up routine, the Hugo TT can be set for variable volume output (for use as a headphone amp or preamp), or with a fixed line-level output (for use with a separate preamp). A word of caution: Selecting fixed level also sets the headphone outputs to max. Crazy! My Benchmark DAC2 HGC works similarly, but you can always visually check the position of its volume knob before plugging in. With the Hugo TT, you have to

notice the volume marble's color, then remember what it means. So if you want to use the Hugo as a normal DAC with your preamp during the day, and as a headphone amp late at night, *don't forget to reset the fixed volume*. I speak from experience.

In the Box

There's a lot going on inside the Hugo TT, starting with the source of much of its heft: the internal battery, which is intended not for portability but for power-supply isolation. Chord warns tweakers not to replace the Hugo's wall-wart power supply, which is optimized to charge this battery: Using any other adapter will void the warranty. In fact, you can charge-up the TT and run it without the power supply, though I kept it plugged in during my tests, as Chord recommends. Battery status is indicated by a colored light—of course!—that's visible through the top panel's lens; a full charge takes about five hours.

The heart of the Hugo TT is a field-programmable gate array (FPGA) that allows engineer Rob Watts to customize most aspects of how the DAC works. I sat with Watts one afternoon as he walked me through the reasoning behind this approach, which is rooted in the idea that the mechanism of human perception of such things as soundstage depth and other psychoacoustic phenomena largely remain mysteries: Being able to tweak each parameter with an

measurements, continued

graph. However, this will be inconsequential. With undithered 24-bit data at -90dBFS, the result was a well-formed sinewave (not shown).

As suggested by fig.2, the Hugo TT offered extremely low levels of harmonic distortion. Fig.6 shows the spectrum of the balanced output driving a full-scale 50Hz tone into 100k ohms. The highest-level harmonic is the second, at just -110dB (0.0003%). Dropping the load to 600 ohms didn't affect the level of second-harmonic distortion, and though the third harmonic rose to -104dB (0.0006%), this is still extremely low. Intermodulation

distortion, even into 600 ohms, was also very low (fig.7).

Tested for its rejection of word-clock jitter—S/PDIF data fed via 15' of generic TosLink cable—the Hugo TT performed superbly well with 16-bit J-Test data (fig.8), with no sidebands visible, and with the odd-order harmonics of the low-frequency, LSB-level squarewave extremely close to the correct levels (green line). With 24-bit J-Test data, whether via TosLink or USB (fig.9), though there is some slight spectral spreading at the base of the spike that represents the 11.025kHz tone, the noise floor is very clean,

despite some very low-level spurious visible in the left channel (blue trace).

With a product that offers, shall I say, idiosyncratic measured behavior, I have to spend a lot of time determining whether I have correctly characterized its performance or if there has been some peculiar interaction between the measuring system and the device under test. With Chord's Hugo TT D/A headphone amplifier, I had no such problems—this is an extraordinarily well-engineered component. I just wish I had had time to listen to it before shipping it back to Jon Iverson. (I took the hint.)—John Atkinson

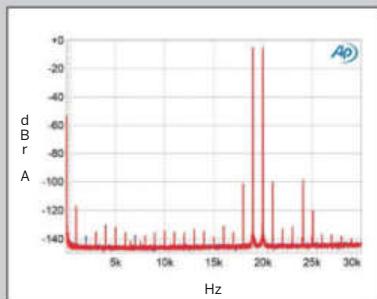


Fig.7 Chord Hugo TT, HF intermodulation spectrum, DC-30kHz, 19+20kHz at OdBFS into 600 ohms, 44.1kHz data (left channel blue, right red; linear frequency scale).

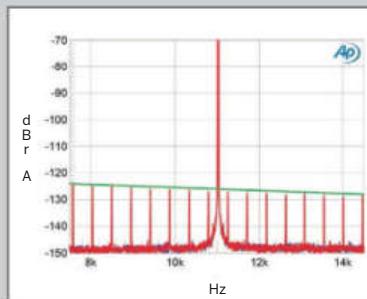


Fig.8 Chord Hugo TT, high-resolution jitter spectrum of analog output signal, 11.025kHz at -6dBFS, sampled at 44.1kHz with LSB toggled at 229Hz: 16-bit data via S/PDIF (left channel blue, right red). Center frequency of trace, 11.025kHz; frequency range, ±3.5kHz.

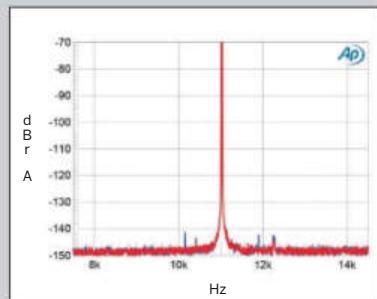


Fig.9 Chord Hugo TT, high-resolution jitter spectrum of analog output signal, 11.025kHz at -6dBFS, sampled at 44.1kHz with LSB toggled at 229Hz: 24-bit data via USB (left channel blue, right red). Center frequency of trace, 11.025kHz; frequency range, ±3.5kHz.



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FPGA makes possible extensive listening tests, thus allowing the engineers to zero in on various desired results.

And tweak Chord does. For example, they tested various noise-shaping techniques until the measured and audible results were what they wanted. Another big part of Chord's approach is the Hugo TT's interpolation filter, which is used to re-create the missing bits between samples. Watts explained that a filter with an infinite number of taps—a digital filter that would require an infinite amount of RAM, yet would be capable of shaping a response curve with incredible "resolution" and consequent smoothness—would be ideal to perfectly re-create the original waveform. Since such precise shaping is not possible with current or foreseeable technology, Watts says he used extensive listening tests to create his Watts Transient Aligned (WTA) filter algorithm, to simulate as closely as possible the results of an infinite-tap filter.

Still, Watts says, more taps give better results with his approach, so the Hugo TT has a WTA filter with a tap length of 26,368: a number that suggests extraordinarily precise filtering. Watts showed me a chart comparing the WTA filter to a conventional filter operating on a sinewave. The difference was obvious: The WTA filter looked nice and smooth, while the conventional, off-the-shelf DAC filter produced a wave that included a series of tiny steps that Chord says can lead to such problems as high-frequency distortion and jitter sensitivity.

Chord also identifies noise-floor modulation as a factor contributing to hardness or brightness and image smear in a DAC's sound, and takes pains to clean this up with careful power-supply implementation, four-layer grounding schemes for the circuit board—and, for DSD sources and their high levels of high-frequency noise, extra digital filtering in the FPGA. Chord addresses jitter with a custom digital phase-locked loop (DPLL), also set up in the FPGA.

Listening to the Box

After fully charging its battery, I inserted the Hugo TT in my main system and fed it the S/PDIF output of my Meridian Sooloos Control 15. Initially, the Chord replaced the Rega DAC-R (\$1195), which I'd just finished reviewing—and there was a subtle but noticeable improvement in detail. The Rega's sound is very slightly thick; the Chord didn't sound thick at all. A good start.

Then JA asked if I'd like some more DACs to compare. First to arrive was the Auralic Vega, then Ayre Acoustics' QB-9^{DSD}. A few weeks later, Philip O'Hanlon, of distributor On a Higher Note, asked if I'd like to hang out with the Luxman DA-06, which Art Dudley reviewed in the July 2014 issue.² Add to that growing stack my trusty Benchmark DAC2 HGC, and I was searching for a way out of the DAC maze.

Relief came in the form of Tony Holt, cofounder of the Central Coast Audio Club. We quickly devised a plan for comparing several DACs with a custom Pipeline set—as in the surf tune "Pipeline," recorded first by the Chantays, then by the Lively Ones, followed by Stevie Ray Vaughan, then Joe Weed, and finally coming ashore with Bill Frisell's awesome, recently recorded version on *Guitar in the Space*



The Hugo TT's antenna is housed beneath the black plastic insert.

The Chord Hugo TT sounded wonderful with headphones.

Age! (PCM file, OKeh). The last two are 24-bit/88.2kHz recordings that are sound-demo-worthy fantastic. (Because the Ayre QB-9^{DSD} is USB only, it was left on the sidelines for this one: We were using the Sooloos, which has only an S/PDIF output.)

First job was to calibrate the remaining four DACs for output level, which were all over the place, and could have easily led to skewed results. That done, we settled in to play all versions of "Pipeline" through each DAC, followed by some head-to-head comparisons using only the Chantays and Frisell tracks. Good thing we love this song.

The Benchmark DAC2 HGC (\$1995) was quickly sifted out for what I heard as a slight papery sound, and Tony heard as a lighter feel than the other DACs. Comparing the Benchmark head to head with the Chord, we agreed that the Hugo TT sounded more dimensional and dynamic, with an ease that the Benchmark lacked. Score one for the Chord.

The Luxman DA-06 (\$4990) offered a contrast of a completely different sort: To Tony it sounded more soothing and perhaps a bit smoother than the Chord, while I felt it lacked the Hugo's detail and bite. The Luxman rounded the tones of guitar and bass, and the ride cymbal, so crucial in "Pipeline," hung back a nanotad. A tougher call, but the Chord squeaked by.

Next up was the Auralic Vega (\$3499), raved about by both JA³ and, over at AudioStream.com, Michael Lavorgna.⁴ The Vega was clearly a different beast: Detail and dynamics were back, but perhaps a skosh too much? Tony said that the Chord's sound was better balanced overall, the bass and guitar sounding more natural and present in their spatial locations. I heard an ever-so-slight hardness in the Vega compared to the Hugo TT. And here was where I began to appreciate the Chord's obvious strengths: detail, definition, and depth, with no distracting artifacts.

A few days after Tony left, I brought the MacBook into

2 See www.stereophile.com/content/luxman-da-06-da-processor.

3 See JA's review in the February 2014 issue: www.stereophile.com/content/auralic-vega-da-processor.

4 See ML's April 2013 review at: www.audiostream.com/content/auralic-vega-digital-audio-processor-0.

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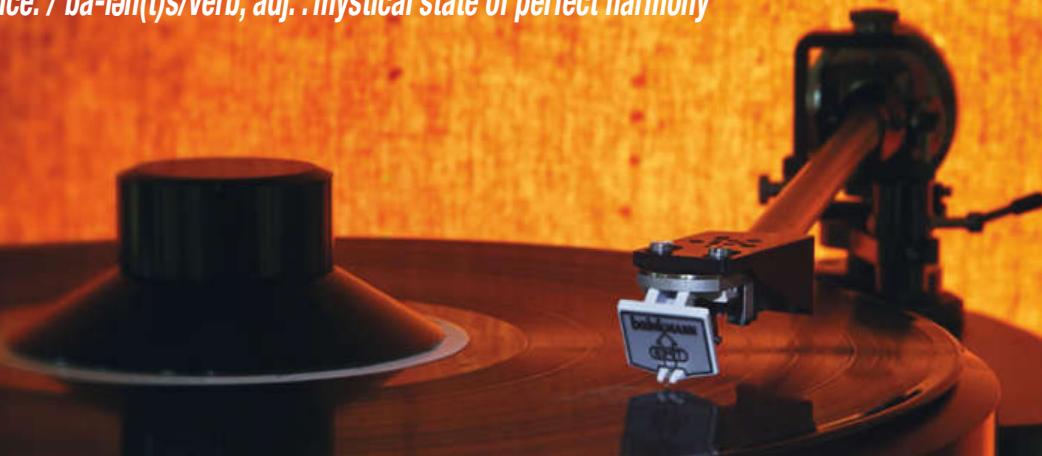


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the living room so I could hook up both the Ayre and Chord via USB. The Ayre Acoustics QB-9DSD (\$3250) was an early winner DAC for me a couple years ago, and I was eager to hear it against the Chord. I cued up the 24/96 version of "Almost Like the Blues," from Leonard Cohen's *Popular Problems* (Columbia), for which his voice was recorded using one of Frank Sinatra's old Neumann U47 tube mikes and a Neve-clone preamp. I could swear that all 80 years of Cohen's well-worn life poured from the speakers like thick, smoky molasses. This is the voice of all the gods speaking at once—if you have this recording, you know what I mean. It sounded glorious with both DACs, no matter how loud I played it. The only difference was that the Ayre seemed a smidge more analytical; the Chord added a bit more body. Nice.

The Ayre costs \$1545 less than the Chord, but also lacks just about everything else the Hugo TT includes, except a USB input. However, they share that detailed, you-are-there, yet wholesome sound that makes me want to play tune after tune. But that's me being dramatic—what I'm trying to describe was a subtle difference from the other DACs that I suspect most folks would hardly notice. But once I'd locked in on it, it was intoxicating. Crazy, I know.

From then on, for a month and change, the Chord Hugo TT anchored all of my main-system listening, to a variety of music from a variety of sources. I pulled out all my usual demos and even Cracker's newest, *Berkeley to Bakersfield* (429 Records/Savoy FTN 16026)—the song "California Country Boy" was a particular challenge. This is about as aggressive as any master from the loudness

wars—the waveform looks almost like a rectangle (how do they even *do* that with country music?)—but still, I found it enjoyable through the Chord, which dug as much detail as could be dug out of that sonic block while minimizing the assault on the ears.

Road Trip with the Box

One of my favorite events is when the Central Coast Audio Club meets at Mike Crowe's beautifully restored mid-century home. There he curates an ever-revolving audio museum in which—in line with his very specific taste in design—many of the components were made near the middle part of the 20th century. This time, I brought along the Hugo TT; I wanted to pop it into whatever rig he'd set up and listen to what happened.

I asked Mike to give the Chord an informal listen with his JBL L65 Jubal speakers powered by his McIntosh Laboratory 225 amp (with 7591 tubes). He hit Play on the Ramsey Lewis Trio's *Down to Earth* (Mercury) and declared the sound "very open and powerful" compared to the DAC in his more-recent-vintage NAD C 525BEE CD player. Everyone in the room loved the Chord, and I'd have to agree that, even through the uniquely sounding JBLs, the Chord's character was easy to distinguish from that of his faithful NAD. Not crazy at all.

Plugging In to the Box

While I was listening to the Hugo TT, Tyll Hertsens, editor of our sister site InnerFidelity.com, sent me pairs of Sennheiser HD800 and Audeze LCD-X headphones. I also have my regular Grado HP1 and new NAD Viso 'phones (both of which are great for recording in the studio) on hand, and used them all with my MacBook plugged into the Chord's HD USB input and running Roon as my music player.

About the Cross-feed modes: There are three settings for headphone listening, all intended to provide a more "out of the head" soundstage. I tried these with several of the above-listed headphones, and—call me old-fashioned—for most of my listening I defaulted to Off. Still,



Road trip:
Crowe's
account of
the Hugo TT.

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I can see how some might love Crossfeed: Images really did appear outside my head, and the sound was more like that of speakers in a room. It was fun with some music, but mostly it just wasn't for me.

But bottom line: The Chord Hugo TT sounded wonderful with headphones. Compared to the Chord, the Benchmark DAC2 HGC sounded lean, with a slight compression wrapped around the music. Dynamic range and impact were impressive with the Chord, and immediately brought to mind my other favorite DAC-headphone amp, Antelope Audio's Zodiac Platinum (\$5500 as reviewed).⁵

And with the Chord, it was LCD-Xs all the way, baby. The NADs and Grados did fine too, but the excessive sibilance and brightness with the Sennheiser HD800s made it hard to bear any but the very dullest recordings. The Audezes were a joy with everything I threw at them. Syd Barrett's meager solo catalog has been released a dozen different ways, but one of my favorites is the remastered 2015 CD of *Opel* (EMI/Harvest), which includes copious outtakes. There's always been a bright edge to this recording through most equipment, but with the Chord Hugo TT and Audeze LCD-Xs I felt I was in the room with Barrett. In particular, the studio outtake "Octopus" jumped out with an I-was-there natural presence that got my foot stomping and my blood pumping. Talk about your crazy English uncle!

Closing the Box

Astute readers will have noted a contradiction a few paragraphs ago, when I said that I perceived the difference that a great DAC like the Chord Hugo TT can make, then suggested that most people might not ever notice that difference. That's the dilemma with DAC reviews: The differences are there, but often are very subtle. How to properly describe what's going on? The answer, I believe, is in properly setting up expectations for what a good DAC can do compared to the run of the mill, and in recognizing that while differences among DACs may be subtle, they can be definitive for those who care.

Chord Electronics' Hugo TT is a great DAC. Its sound is detailed but not in your face, and I found it a complete pleasure to listen to. Though I didn't have them on hand for a face-to-face, I'd put the Hugo TT in the same class as MSB Technology's Analog DAC (\$6995)⁶ or the Antelope Zodiac Platinum, both of which I've heard at length in the same system.

When I hear something I like, and then I'm disappointed to see it head out the door, I know what to do: The Hugo TT is one DAC I hope to get back for a little while after JA finishes taking those measurements. (Hint, hint.) ■

5 See my review in the September 2014 issue: www.stereophile.com/content/antelope-audio-zodiac-platinum-da-processor%C2%96headphone-amplifier-voltikus-power-supply.

6 See my review in the April 2014 issue: www.stereophile.com/content/msb-technology-analog-dac-da-converter-and-analog-power-base-power-supply.

ASSOCIATED EQUIPMENT

Digital Sources Apple MacBook Pro computer (2.66GHz Intel Core 2 Duo, 8GB RAM, 512GB SSD) running OS 10.10.4, Roon V1 Build 30, JRiver Media Center 19, iTunes 12, Amarra Computer Music Player, VLC, Reaper 4.78, XLD; Western Digital NAS Device (2TB); Oppo Digital BDP-103 universal BD player; Meridian Sooloos Control 15 music server (QNAP TS-669 Pro NAS); Apple iPad Air & iPod Touch 1G & iPhone 6.

Digital Processors AudioQuest DragonFly USB DAC, Auralic Vega, Ayre Acoustics QB-9^{DSD}, Benchmark DAC1 USB and DAC2 HGC, Cambridge Audio DacMagic XS, Rega Research DAC-R, Luxman DA-06.

Preamplifier Marantz AV7005 in Pure Direct Mode.

Power Amplifier Classé CAM 350 monoblocks.

Loudspeakers MartinLogan Prodigy & BalancedForce 212 subwoofers (2). For desktop & recording monitoring: Emotiva Airmotiv 5s, Velodyne Servo-F Series subwoofer.

Headphones Audeze LCD-X, Grado HP1, NAD Viso, Sennheiser HD800.

Cables USB: AudioQuest Victoria (DragonFly) & Diamond, Cardas Clear. S/PDIF: AudioQuest HD6 Carbon (studio to main listening room), Cardas Neutral Reference, XLO UltraPLUS UP4U. Line level: Kimber Kable (various), XLO HT Pro. Speaker: Kimber Kable BiFocal XL.

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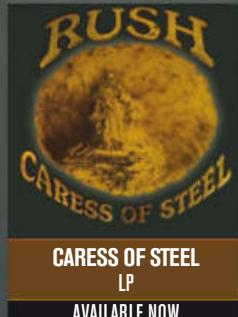
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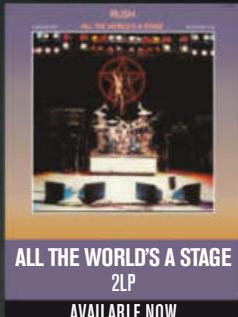
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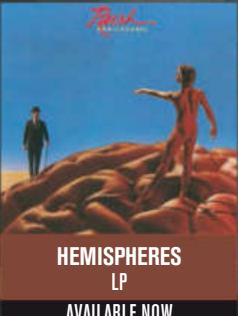
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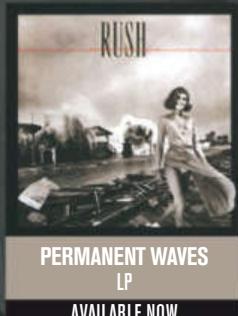
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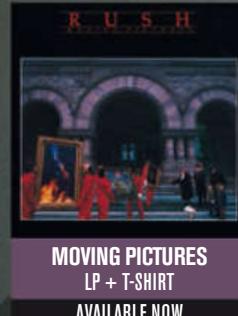
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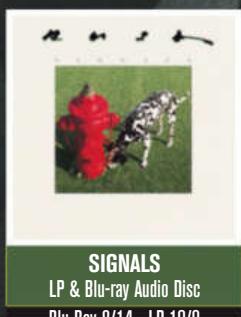
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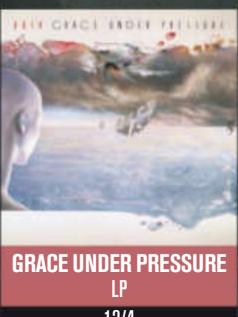
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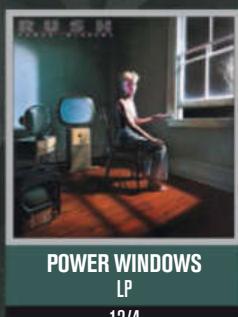
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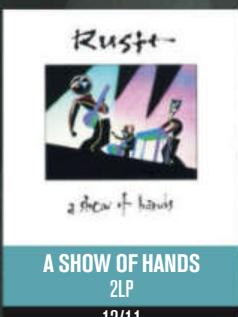
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FOLLOW-UP

BY ART DUDLEY,
JOHN ATKINSON, & ROBERT DEUTSCH

THIS ISSUE: Second looks and listens to products from Shindo, Meridian, Abis, UpTone, and PS Audio.

SHINDO AURIÈGES EQUALIZER AMPLIFIER

The first Shindo Laboratory product I ever had in my home was the Aurièges preamplifier, which I wrote about in the July 2007 issue of *Stereophile*.¹ The Aurièges, which in 2007 sold for \$3895 and is now priced at \$5495, was and is the company's entry-level line-plus-phono preamp, with separate enclosures for its signal electronics and power supply; each box measures 10.625" wide by 3.125" high by 10.75" deep—a unique and somewhat smaller-than-average size in Shindo's product line—and both are painted green.²

To say I was impressed by the Aurièges would be an understatement. As with other products that prove, in the present or in retrospect, their greater-than-average importance, the Aurièges changed my point of view and made me reconsider my priorities regarding the relative importance of various performance characteristics, among them tone, touch, drive, scale, texture, and detail. The Aurièges also set me on a path along which, just a couple of months later, I purchased for my own use a Shindo Massetto preamplifier (serial no. 003), which remains my reference: Musically beguiling though the high-value Aurièges was, its highish output impedance (5k ohms) restricted my interconnect choices, and its phono section lacked a moving-coil stage—shortcomings addressed in the Massetto by the addition of custom-wound output and input transformers.

But if my livelihood didn't depend, in part, on continually swapping different products in and out of my audio system, I think the Shindo Aurièges would have suited me for the duration.

At some point within the last few years of his life, the late Ken Shindo designed an outboard phono preamplifier—a decision perhaps made inevitable by his earlier decision to answer popular demand with line-only versions of the Aurièges and the more upmarket Vosne-Romanee preamps. He built it into an Aurièges case: a somewhat natural choice, given the case's compact size and its built-in isolation between signal paths and power supply. One has to look closely to see the difference: The two front-mounted controls on each product are labeled differently (more on that in a moment), and the phono-only version bears a slightly different name: the Aurièges Equalizer Amplifier (\$7895).

The power supply of the newer Aurièges is laid out somewhat differ-

ently, the input is directed to the signal grid of an EF83 pentode. Differences in circuit layout and parts values also abound, although parts *choices* are very much in keeping with the V-R and other Shindo products: Most of the resistors and capacitors are NOS, the latter including Sprague Vitamin



ently—and is shielded by slightly larger partitions—than in the unit I reviewed and photographed in 2007. But the basics remain the same: a sizable Denki E-core mains transformer, with a (Philips) 6X4 rectifier tube for the rail and solid-state rectifiers for other DC requirements. The power supply is as beautifully constructed as in other Shindo components of my experience, and connects to the signal-processing circuitry by means of a 17"-long umbilical.

The preamplifier box contains four new old stock (NOS) tubes: pairs of Sylvania 6072 dual-triodes and Telefunken EF83 pentodes. Given the use of the 6072s, I wondered at first if this phono-preamp circuit might be the same as the phono stage of the similarly equipped Shindo Vosne-Romanee full-function preamplifier, but that now seems unlikely: In the latter, each channel's phono input signal goes straight to one of the 6072 tubes—a low-noise dual triode that, within the past five years, has become difficult to find—while, in the Aurièges Equalizer

I wondered at first if this phono-preamp circuit might be the same as the phono stage of the similarly equipped Shindo Vosne-Romanee.

Qs and Orange Drops and those 1970s-era RCA film capacitors that pop up in other Ken Shindo designs. Also included are *three* custom-wound Lundahl step-up transformers: On the back of this Aurièges, a miniature toggle switch allows the user to select between a stereo pair of RCA jacks and a single RCA jack labeled Mono. Specs are not published for the Lundahls, although the one connected to the mono input looked slightly

1 See www.stereophile.com/ardudleylistening/607listening/index.html.

2 Shindo Laboratory's US distributor is Tone Imports. Tel: (646) 425-7800. Web: www.toneimports.com.

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different from the other two, with additional terminals that seem to betray the existence of additional secondary windings.

Ken Shindo took advantage of the Aurièges Equalizer Amplifier's status as a standalone product to endow it with two controls that have not, as far as I know, appeared on any of his full-function preamplifiers: a two-position rotary switch for selecting between Stereo and Mono, and a three-position rotary switch for selecting among three different de-emphasis curves: RIAA, Columbia, and 78. Both controls are effective at all times, regardless of which inputs have been selected by means of that rear-panel switch.

The latter setting on the de-emphasis control is a rough average of the many different playback curves that roamed the Earth in the years before 1954: an approximation intended to offer better-than-RIAA sound quality to owners of 78rpm records who care about such things, but not enough to chase down the precisely correct settings for each individual disc in their collections. The reason for bothering at all: The RIAA de-emphasis curve, which has been the ostensible industry-wide standard since 1954, includes a treble rolloff to compensate for the treble boost used as a pre-emphasis curve during the disc-mastering stage. But because early electrical 78s were mastered without a treble boost, a concomitant treble cut during playback renders them dark and dull.

The key word appears to be *early*, and the prospective user must keep in mind that virtually every manufacturer of 78s did things a little differently from its competitors. Thus my own experiences with the ostensibly shellac-friendly curve of the Aurièges Equalizer Amplifier: A wonderful Decca recording of Siegfried Wagner leading the Philharmonic Orchestra in excerpts from his father's *Die Walküre* (American Decca 25208) was very much improved by the Shindo's 78 setting, as was a recording of Walter Gieseking playing Chopin's Barcarolle in F-sharp (Columbia 71026-D). But another Columbia 78, of Count Basie and his All American Rhythm Section playing "St. Louis Blues" (Columbia 36711), sounded best through the Shindo's Columbia setting—I'm not reading too much into that—and one of my favorite records of all time, Louis Armstrong and His Orchestra performing "You're Driving Me Crazy" (Parlophone R.



Most of the resistors and capacitors are NOS, the latter including Sprague Vitamin Qs and Orange Drops.

866), sounded way too bright when the Aurièges was switched to 78. Trial and error ruled the day; my reward was frequent but by no means universal leaps in sound quality.

No less real but arguably less urgent is the need for a separate playback curve for Columbia LPs mastered between 1948—the year the company introduced the long-playing record—and 1955. In accordance with the Columbia pre-emphasis curve, high frequencies above 1.6kHz were boosted during the mastering stage, whereas the RIAA specifications call for the pre-emphasis boost to begin at 2.12kHz. Thus, during playback, a treble range that was boosted during the making of early Columbia LPs receives insufficient rolloff, leaving that range to stick out in a manner that even the most complacent observer would liken to a turd in a punchbowl.

During my experiences with the Aurièges Equalizer Amplifier, no greater argument for its Columbia setting was made than when I used it to enjoy Duke Ellington's 1952 LP *Ellington Uptown* (Columbia ML 4639). The Shindo's Columbia de-emphasis curve made the very loud trumpet glissando in "A Tone Parallel to Harlem" much less shrill—and detracted not one iota from the record's sensationally good impact, presence, and timbral color. In

fact, that record through that setting of this phono preamp supplied one of the most pleasurable listening experiences I'd had in weeks.

But I suspect a majority of readers would be most interested in this phono preamp's RIAA performance: the primary focus of my attention during the time the Aurièges has been in my system. My review sample arrived with its stereo pair of Lundahl step-up transformers physically in place but electrically disconnected; because I typically use my Masseto without its own input transformers, I was able to fairly compare the two Shindos by preceding both with my outboard Hommage T2 step-up transformer (except, of course, when using

the single mono jack, whose single transformer is good but not great, being neither as punchy nor as vivid as the T2). Shindo doesn't publish gain specifications, but it seemed to me that the Aurièges Equalizer Amplifier, thus set up for use in moving-magnet mode, offered *slightly* higher gain than the similarly configured Masseto.

Listening with this new phono preamp feeding the line stage of my Shindo Masseto preamplifier, the first words that crossed my mind were *chunky*, *solid*, and *colorful*—but mostly *chunky*. The first LP I tried was the recording by cellist Paul Tortelier, Sir Adrian Boult, and the London Philharmonic of Elgar's Cello Concerto (EMI ASD 2906); the Masseto's own phono stage is no slouch at putting across the intensity of Tortelier's thickly textured attack—but imagine my surprise at hearing the Aurièges take that quality a very satisfying step further. The cello's timbral colors were also more saturated through the Aurièges—something that was also apparent in the sounds of many instrumental groups in the orchestra, especially the brass—and Shindo's outboard phono preamp had no less musical thrust and drive than the full line-plus-phono Masseto.

Those strengths were repeated with literally every record I tried; so, too, was a quality that was neither strength nor weakness, but rather a characteristic on which the prospective owner must reckon: The overall tonal balance of the Aurièges was a bit darker than that of the Masseto's phono stage—or,

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for that matter, of the average outboard phono preamp of my recent experience. Through the Aurièges, bass response was slightly more generous and trebles very slightly attenuated. The result was that the Aurièges Equalizer Amplifier, though superior to the phono stage of the Masseto in its ability to uncover sonic and musical details, also sounded just a bit richer.

One might reasonably ask: Is the Aurièges Equalizer Amplifier "better" than the phono section of the Masseto? In light not only of the above but also of the Aurieges's talent for releasing

from recordings a consistently strong, convincing sense of musical drive—the Aurièges was at least the equal of the Masseto's own phono preamp in that regard, and often seemed to play music with even greater temporal realism—my answer would be yes. The Aurièges sounded a bit different overall, but at least as musically accomplished. And the appeal of its extra controls and settings is undeniable, if limited to a relatively small proportion of audiophiles.

As an extremely happy Masseto owner—over eight years' worth of happy!—I'm nonetheless mildly

tempted to save up for an Aurièges Equalizer Amplifier of my own, owing as much to its promise of enhanced flexibility as to its superior sound quality; but for now, other system upgrades have priority. On the other hand, were I the owner of a lesser full-function preamplifier, or virtually any line-only preamp, the new Aurièges would be at the top of my list. In its sound, its musicality, and its distinction as a handmade, artisanal component of exceptional quality and consequently high value, it is every inch a Shindo.

—Art Dudley

MERIDIAN AUDIO PRIME D/A HEADPHONE AMPLIFIER

When, in October 2014, I reviewed Meridian's Prime D/A headphone amplifier (\$2000) with its optional Prime Power Supply (\$1295),³ I found some anomalies in the combination's measured performance. Specifically, the Prime appeared to truncate the least-significant bit (LSB) with 24-bit USB data; and the level of a dithered 24-bit, 1kHz tone at -120dBFS was exaggerated by more than 12dB (fig.1). In addition, though the Prime performed well when fed 16- and 24-bit J-Test data, present in the processor's output was what must have been an idle tone at 8kHz (fig.2).

Subsequent discussion with Meridian indicated that the Prime Power Supply—which connects to the host computer's USB port, while a short USB cable connects the supply to the Prime D/A headphone amplifier—had introduced these measured problems. (Another revelation: My review sample of the Prime Power Supply—serial no. P1PS-000001—turned out to be a prototype.)

I had intended to examine these problems when I received a firmware upgrade for the Prime D/A that would allow it to decode MQA data,⁴ but as of the time of writing (late July 2015), this was still pending. Nonetheless, I thought it appropriate to confirm that the Prime Power Supply had been the culprit by repeating some of the measurements with the Prime powered by its wall-wart supply and fed USB data



Meridian Audio Prime D/A headphone amplifier

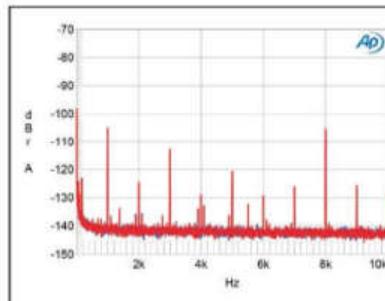


Fig.1 Meridian Prime with Prime Power Supply, USB input, spectrum with noise and spurious of dithered 1kHz tone at -120dBFS with 24-bit data (left channel blue, right red) (10dB/vertical div.).

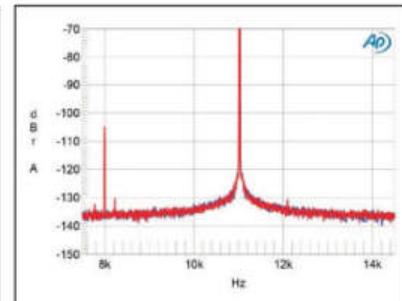


Fig.2 Meridian Prime with Prime Power Supply, USB input, high-resolution jitter spectrum of analog output signal, 11.025kHz at -6dBFS, sampled at 44.1kHz with LSB toggled at 229Hz: 24-bit data via USB from MacBook Pro (left channel blue, right red). Center frequency of trace, 11.025kHz; frequency range, ±3.5kHz.

³ See www.stereophile.com/content/meridian-audio-prime-da-headphone-amplifier. Meridian Audio Ltd., Latham Road, Huntingdon, Cambridgeshire PE29 6YE, England, UK. Tel: (44) (0)1480-445678. Fax: (44) (0)1480-445686. US distributor: Meridian America Inc., 110 Greene Street, Suite 407, New York, NY 10012. Tel: (646) 666-0140. Fax: (646) 666-0152. Web: www.meridian-audio.com.

⁴ See www.stereophile.com/content/ive-heard-future-streaming-meridians-mqa.

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Fig.3 repeats the spectral analysis of the Prime's output when it is fed a dithered 24-bit, 1kHz tone at -120dBFS. The use of the wall wart has increased the level of the low-frequency supply-related spuriæ, though not to a level that would be audibly significant. More important, the spectral line that represents the 1kHz tone is now very close to the correct level, and there are no harmonics above -138dBFS. Repeating this analysis with a dithered 1kHz tone at -90dBFS again indicated that the tone was at the correct level. However,

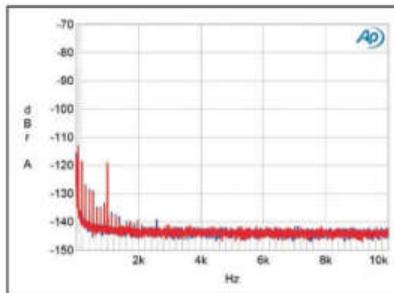


Fig.3 Meridian Prime with wall-wart supply, USB input, spectrum with noise and spuriæ of dithered 1kHz tone at -120dBFS with 24-bit data (left channel blue, right red) (10dB/vertical div.).

there is a small increase in the level of supply-related spuriæ with the wall wart, though these are still very low in absolute terms.

With 24-bit J-Test data (fig.4), the central spectral spike representing the tone at one-fourth the sample rate still has a significant amount of spreading at its base, but the tone at 8kHz is now absent.

It does appear that the Prime Power Supply was to blame for the measured problems with 24-bit data. But a mystery remains: Why did I prefer the sound of the Prime *with* the underperforming Prime Supply?—John Atkinson

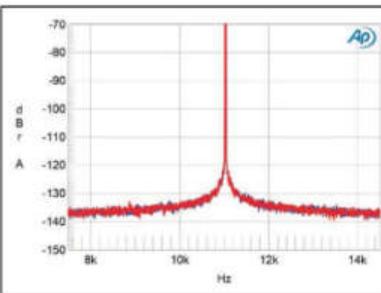


Fig.4 Meridian Prime with wall-wart supply, USB input, high-resolution jitter spectrum of analog output signal, 11.025kHz at -6dBFS, sampled at 44.1kHz with LSB toggled at 229Hz: 24-bit data via USB from MacBook Pro (left channel blue, right red). Center frequency of trace, 11.025kHz; frequency range, ±3.5kHz.

tions in overhang can easily produce other geometries, with greater or lesser emphases on inner-groove distortion, average distortion, and so forth.

As mentioned above, the SA-1.2 uses improved versions of the same radial ball bearings found in the SA-1. The bearing that permits horizontal movement of the arm is especially interesting: While most radial bearings are intended for vertical alignment, as in wheel axles, the SA-1.2's horizontal bearing is designed specifically for an upright column. When loaded by gravity, the angled contact surface of the upper bearing race exerts angular force against the bearing balls, down into and against a similarly angled but larger-diameter lower race. This angular-contact thrust bearing thus

This angular-contact thrust bearing self-aligns when in use, to produce less friction, noise, and wear.

self-aligns when in use, to produce less friction, noise, and wear than more conventional bearing types.

Retained from the SA-1 is its distinctive armtube of rectangular cross section, in which four distinct, precision-milled aluminum structures are fastened together in a manner claimed to control resonances without resorting to the use of silicone goo or other such energy-storing kludges. Also remaining is the SA-1's static downforce system,

5 See www.stereophile.com/content/listening-135. Abis/Sibatech Inc., Room 1301, 8-25-22 Higashi-Suna, Koto-ku, Tokyo 136-0074, Japan. Tel: (81) 3-3645-1646. Fax: (81) 3-3645-1948. Web: www.sibatech.co.jp. US distributor: Mockingbird Distribution, LLC, Van Alstyne, TX. Tel: (214) 668-2509. Web: www.mockingbirddistribution.com.

6 Mine is actually the SA-1.2B, the black finish of which is, I'm told, sufficiently difficult to create that it carries a slightly higher price: \$2000.

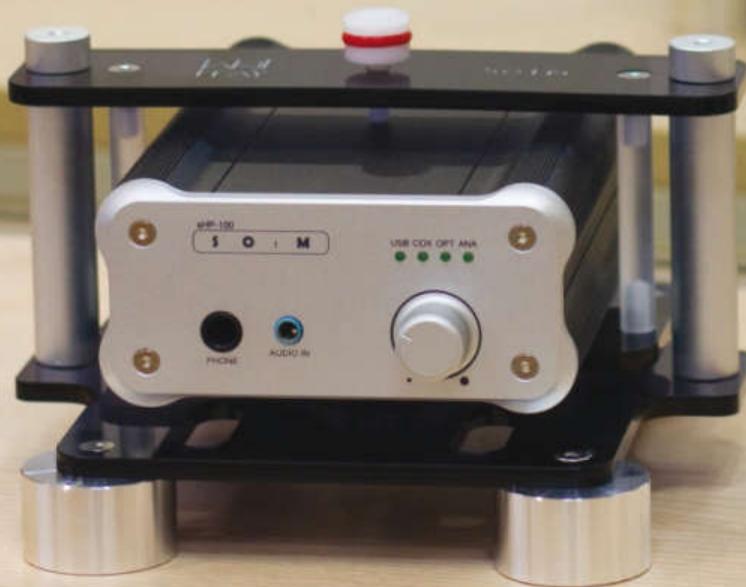
three areas: improved bearings, greater effective length (9.4" vs 9"), and slightly greater offset angle (22.25° vs 22°). The latter two changes combine to endow the SA-1.2 with geometry that differs from that of the SA-1, and although a detailed discussion of same would be too long and too soporific for this space, it appears that, when installed and set up per Abis's instruction manual, the SA-1.2's geometry is close to Stevenson alignment. Moreover, according to Holmes, minute altera-



The Abis SA-1.2's arm pillar, before (left) and after (right) being lowered within the cueing gantry.

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with a sliding weight calibrated up to 3gm, and a removable ancillary weight that adds another 1.5gm when needed. (The hobbyist who has a good-quality stylus-force gauge can get a greater range of downforce simply by adjusting the counterweight's position—an approach aided by the inclusion with the SA-1.2 of a counterweight-stem extension.)

My review sample was expertly packaged and beautifully finished, and supplied with both an Abis-specific AccuTrak alignment protractor (Mockingbird includes one of these free of charge with every Abis arm sold in the US) and a three-piece installation template that enables the user to precisely locate the tonearm-mounting hole *before* drilling. (What a concept!) The template proved easy to use, and within an hour the SA-1.2 was mounted securely on my Thorens TD 124 turntable.

The instruction manual suggests that cartridges should be installed in the stock Abis headshell with a space of precisely 50mm between the stylus tip and the edge of the mounting collet. With my Denon DL-103, that was achieved when the front surface of the cartridge body was set back from the front edge of the headshell by just under 2mm (about $5/64$ ", or 0.08"). That done, I set the arm for the Denon's recommended downforce of 2.5gm and used the AccuTrak protractor (a laminated card) to check the cartridge alignment: It was very darn close, requiring only that I twist the cartridge a bit in the headshell to increase the offset angle by perhaps a fraction of a degree. Within a minute, I had it dead on. I guess Abis wasn't kidding about the 50mm thing.

The first LP I tried with the new Abis was the recording by Antal Doráti and the London Symphony Orchestra of *The Moldau*, from Smetana's *Má Vlast* (LP, Mercury Living Presence SR90214): a record that just happened to be out on the floor as I sifted through my collection to cull those LPs I'm not passionate about keeping. (See this month's "Listening.") The performance is decent, but not of the caliber of Rafael Kubelik with the Vienna Philharmonic on Decca, nor do I hold the Mercury Living Presence sound in the same esteem as I do that of the far more accomplished Decca. But one doesn't have to wait very long in *The Moldau* to hear someone pluck rather than bow a string—and there

are more plucks where that came from. The second they started up, I realized that the Abis SA-1.2 was even more impressive than the SA-1. Fellow idler-wheel fanatics will understand when I say that the addition of the SA-1.2 made my very good Thorens TD 124 sound more like a Garrard 301. The Abis pulled from that record tremendous amounts of touch and force and impact, and locked on to every melodic line and followed it like a metronomic bloodhound: It was machine-like, but in the best way. And all the while, tone and texture and color sounded as organic and real as I

The addition of the SA-1.2 made my very good Thorens TD 124 sound more like a Garrard 301.

could want.

I'm sure as hell not going to sell that record *now*.

I moved on to an old favorite by the (scarcely) post-Richard Thompson Fairport Convention: *Babbacombe Lee*, which one can rightly call the first Brit-folk-rock operetta (LP, Island ILPS 9176). Note attacks from Simon Nicol's electric guitar and Dave Swarbrick's electric mandolin fairly leapt from the groove, and with appreciably more impact and touch than with my Thomas Schick tonearm and headshell; Dave Pegg's masterfully played electric bass was colorful and likewise forceful, again with solid senses of momentum and rhythm. More important, the music throughout was as intellectually and physically involving as I've ever heard it.

After years of looking, I finally found an original copy of Captain Beefheart & the Magic Band's *Lick My Decals Off, Baby* (LP, Straight/Reprise 6420), and was surprised at what a good-quality recording it is—a quality that doesn't come across in the CD reissue I've made do with for years. In particular, "Woe-Is-Uh-Me-Bop" sounded brilliant, the sounds of marimba and, especially, Rockette Morton's bass leaping from the groove at every unpredictable turn. Surprisingly, the combination of TD 124, Abis SA-1.2, and Denon 103 sounded a little darker than my usual combo of Garrard 301, EMT 997, and EMT TSD

15; the latter maintained an edge in impact and drive, but the Abis brought the Thorens closer to that reference than I've ever heard. It was satisfying in the extreme.

One evening, while Janet and Julia were both away—Janet visiting her dad in Oregon, Julia attending a month-long study program in Ireland—I finished work early in the day so I could prepare a quick dinner and get right to messing around with the hi-fi: The time had come to try one of my many EMT A-style pickup heads in the Abis, alignment be damned (at least for now—an easy thing to say for a man whose every pickup head is fitted with a spherical rather than an elliptical or hyper-elliptical stylus). After setting downforce with the aid of the SA-1.2's ancillary weight, I cued up my 1960 copy of *Gerry Mulligan Meets Ben Webster* (LP, Verve MCV-8343) and settled in for "Chelsea Bridge." I was astonished by timbral colors that were much more vivid than with the SA-1, and similarly shocking levels of touch, presence, and blessed drive.

And it struck me: I was listening to this record on a system that, to be sure, costs considerably more than that owned by the average consumer—and yet, at the same time, arguably considerably *less* than the high-end audio average: a Thorens TD 124 (market price *ca* \$900) with homemade plinth; the Abis SA-1.2 arm (\$1775); an EMT OFD 25 cartridge (\$2250 when last available); a Shindo Laboratory Masseto preamplifier (\$12,500) and Haut-Brion amplifier (\$9950); and Altec Valencia speakers (market price \$1800/pair) on homemade stands. And this record had Never. Sounded. Better. The playback quality was everything I want, and not an ion less.

A note to Thorens TD 124 owners: That turntable's very low-slung platter, relative to the armboard, often forces one to contend with suboptimal vertical tracking angle (VTA), especially with cartridges whose bodies are shallower than average: Some tonearms can't be lowered sufficiently to make the armtube parallel to the record's surface. So it was when I first installed the Abis SA-1.2 on my own TD 124—until I noticed the two setscrews that secure the arm's cueing gantry. It required only a 1.5mm Allen wrench and a few minutes' work to move the gantry to the uppermost edge of the arm pillar, which allowed the Abis to sit as low as possible, thus solving the

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problem. *But*—lowering the Abis also required using the same Allen wrench to remove and set aside the arm's cueing mechanism. That doesn't bother me—I have as much use for cueing levers as I do for remote handsets. Not

UPTONE AUDIO REGEN USB BUFFER

Both Kal Rubinson and Michael Lavorgna report in this issue on the positive effects UpTone Audio's USB Regen⁷ had on the sound quality of D/A processors fed USB data. Kal loaned me his review sample for a few days so I could see if it made any measurable differences to a D/A processor's analog output signal.

Unlike AudioQuest's passive JitterBug, which I reviewed in the September issue, the Regen is an active device that regenerates the USB datastream. The Jitterbug is intended to reduce the level of radio-frequency (RF) noise on the balanced data connection, the 5V power bus, and the ground connection. In my measurements of the JitterBug for my review, I used four different test signals with three different D/A processors and one, two, or no JitterBugs. Only in two of the large number of test conditions did I find any measurable improvement in the reconstructed analog signal. Even then, the measured improvement was so small that it was hard to see that it could have had anything to do with the improvement in sound quality I heard the JitterBug make with the Mac mini I use as a music server.

One thing that emerged after the review was published was that Gordon Rankin, one of the JitterBug's designers, suggested using a very long USB cable to bring the measurable difference out from the DAC's noise floor. The long cable will marginalize the USB transmission to the point that the effect of the JitterBug will be more easily measurable. So to measure the effect of the Regen, I took a generic 3m USB cable and lengthened it with a 1.5m USB cable extender. This brought the total length of the cable close to the USB's maximum cable

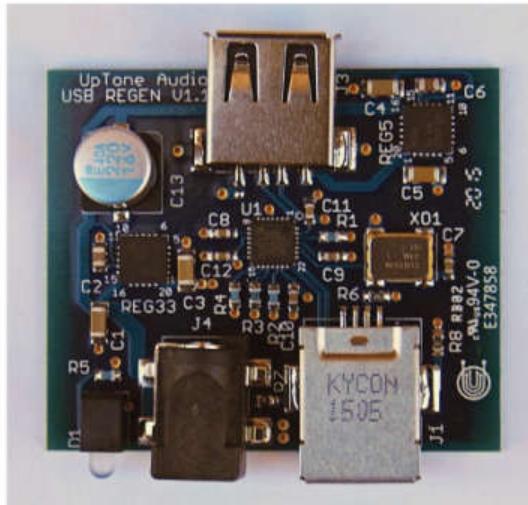
PS AUDIO PERFECTWAVE DIRECTSTREAM DAC: YALE FIRMWARE UPGRADE

Obsolescence is obsolete—at least according to the slogan coined by PS Audio's Paul McGowan when he introduced their PerfectWave DirectStream DAC (\$5999). Allowing for a bit of marketing hyperbole, he

every record lover will feel the same.

That consideration aside, the Abis SA-1.2 tonearm deserves my strongest recommendation. For LP enthusiasts who prize tone, touch, and timing above all else, I'd put the combination

of Abis SA-1.2 and Denon DL-103 up against all but their priciest competitors; and for delivering the most of those performance characteristics for the least amount of money, it has few competitors.—**Art Dudley**



I found that the Regen made absolutely no difference in the D/A processors' analog output signals.

length of around 12'.

Using this long cable and my MacBook Pro running on battery power, I tested the Regen with a PS Audio PerfectWave DirectStream DAC and a Meridian Prime D/A headphone amplifier, using my Audio Precision SYS2722 analyzer and the same test signals I'd used for the JitterBug review. Sad to report, I found that the Regen made absolutely no difference in the D/A processors' analog output signals. With one exception: the levels of the power-supply-related spurious in the Prime's output when powered by its wall wart (see my Follow-Up report on p.139) were slightly higher in level with the Regen than without it.

had a point. While the DirectStream's hardware platform has stayed the same, the use of field-programmable gate arrays (FPGAs) has allowed its designer, Ted Smith, to come up with ever more refined versions of the firmware (they

However, I did find one idiosyncrasy that will affect A/B comparisons of the Regen's effect. I used Pure Music 2.0 to play my source files. When I disconnected the D/A processor from the MacBook Pro's USB port to insert the Regen then reconnected it, while Pure Music still sent the file's data to the USB port for playback, it no longer automatically changed the Mac's CoreAudio parameters to match the file. If I played a 16-bit/44.1kHz file without the Regen, then disconnected the DAC, inserted the Regen, reconnected the DAC,

and played a 24/96 file, that file was truncated to 16 bits and downsampled to 44.1kHz. This is something that will be readily audible.

The correct procedure to perform A/B comparisons with the Regen using Pure Music was to deselect the DAC in use as the output device, relaunch Pure Music, disconnect the DAC, insert the Regen, reconnect the DAC, reselect the DAC with Pure Music, then relaunch Pure Music. Then, and only then, could a legitimate A/B test be performed.

Kal and Michael were careful to observe the correct protocol when performing their comparisons with the USB Regen. But I do wonder how many of the A/B tests published on the Internet were not done correctly.

—John Atkinson

7 The USB Regen costs \$175. UpTone Audio LLC, Tel: (209) 966-4377. Web: www.uptoneaudio.com.

now call it an operating system), each major revision bringing audible benefits. Best of all, these updates are free.

I made my acquaintance with the PerfectWave DirectStream DAC in fall 2014, when its operating system was



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v.1.1.4, upgraded a few weeks later to v.1.2.1. I wrote about the DirectStream in the February 2015 issue,⁸ and about v.1.2.1 in March 2015,⁹ an issue that also included John Atkinson's measurements of it. Then came the Pikes Peak upgrade, PS Audio having decided on nonnumerical designations for that and subsequent OS upgrades.

Now we have the latest upgrade, Yale (named for Colorado's Mount Yale, not the university in Connecticut). What's new with Yale? Here's the description from Ted Smith, who has made a valiant effort to describe some highly technical aspects of design.

There are changes in how the upsample from 44.1 to 48kHz and from 88.2 to 96kHz are handled in Pikes Peak and Yale. This led to the use of more accurate filters in Yale.

Yale also includes a new approach to lower jitter and noise generation that does the work in slices of different size. There's a more studied placement of the processing steps, which lowers jitter and noise production. Yale incorporates the first half of reworking the FPGA code, to generate less jitter and noise by changing when things are done instead of what things are done.

Smith points out that jitter and noise in the FPGA don't necessarily show up in the analog output noise in any obvious way. A lot of the FPGA work is in contouring the low-level noise and minimizing any interaction or modulation of the digital output signals.

Before I describe what Yale sounded like, a bit about how PS Audio develops their products—to my knowledge, a process unique in the industry for the way the company listen to the opinions of their customers. PS Audio has a very active Community Forum (www.psaudio.com/forum), in which McGowan and Smith participate. When a new OS is released, it's initially made available for download on the website as a Beta "soft release" on which anyone can comment—and many do. In typical audiophile fashion, everyone has an opinion of the sound, and those opinions are often quite varied, even diametrically opposed. Most forum contributors think that each upgrade is an improvement over the one before, but there are always some who point out what they believe are problems



with the sound and suggest changes. It must be a great challenge for McGowan, Smith, and their team to glean from the great volume of customer feedback suggestions that are genuinely useful rather than merely represent the posters' idiosyncratic tastes. But for those who, for whatever reason, are dissatisfied with the latest OS, preferring the previous one or even the one before that, all operating systems remain available for free download from PSA's website.



The PS Audio's operating system is installed from an SD card.

I was happy with Pikes Peak, and felt that it represented a genuine advance over v.1.2.1—and I liked the Yale version even more. (All of my listening was to CDs, played through PS Audio's PerfectWave Memory CD/DVD transport (\$3999), a Convergent Audio Technology SL1 Renaissance preamp, a McIntosh Laboratory MC275 LE power amp, and Avantgarde Uno Nano speakers; all cables and interconnects were Nordost Valhalla 2.)

The Yale tonal balance was very similar to that of Pikes Peak: bass about the same, treble a bit softer and a bit more subtly detailed. In comparison, Pikes Peak was a bit brighter, more forward. In my review of the Pikes Peak upgrade in the May 2015 issue,¹⁰ I said that listeners whose systems are on the borderline of being too bright might prefer v.1.2.1. Yale was like v.1.2.1 in that respect, but its slightly softer

sound was combined with higher resolution and even better dynamics—a difficult trick to achieve. It's easy for DirectStream users to ask Ted Smith for "a little less/more treble, please," or "Can you give us more rhythm and pace?," but putting such audiophile concepts into practice is no mere matter of tweaking a few dials.

The Yale operating system was superior to Pikes Peak and to v.1.2.1 in depth and width of soundstage, and in the precision of positioning of images on soundstages. Of course, this is also a function of the speakers and their setup. The Fujitsu Ten Eclipse TD712z Mk.2 speakers,¹¹ which I was using when I wrote my Follow-Up on Pikes Peak, are champions at soundstaging and imaging; the Avantgarde Uno Nanos are good, but no match in this respect for the single-driver Fujitsus. However, with the same speakers, the Yale OS revealed its superiority at soundstaging and imaging. In "General Image and Resolution Test," track 47 of *Best of Chesky Jazz and More Audiophile Tests, Volume 2* (CD, Chesky JD 68), the people marching around the room and playing their percussion instruments had a scary presence, their movements precisely defined in space.

I leave the concluding comments to Ted Smith: "As good as DirectStream was at the outset, it has steadily gotten better. . . . and I'm already working on ideas that should make it much, much better still. I'm excited to be working on a product that will never become obsolete, and will continue to provide state-of-the-art performance forever."

—Robert Deutsch

⁸ See www.stereophile.com/content/ps-audio-perfectwave-directstream-da-processor-robert-deutsch-february-2015. PS Audio, 4826 Sterling Drive, Boulder, CO 80301. Tel: (720) 406-8946. Web: www.psaudio.com.

⁹ See www.stereophile.com/content/ps-audio-perfectwave-directstream-da-processor-new-firmware.

¹⁰ See www.stereophile.com/content/ps-audio-perfectwave-directstream-da-processor-pikes-peak-upgrade.

¹¹ See my Follow-Up review in the July 2015 issue: www.stereophile.com/content/fujitsu-ten-eclipse-td712z-loudspeaker-july-2015.



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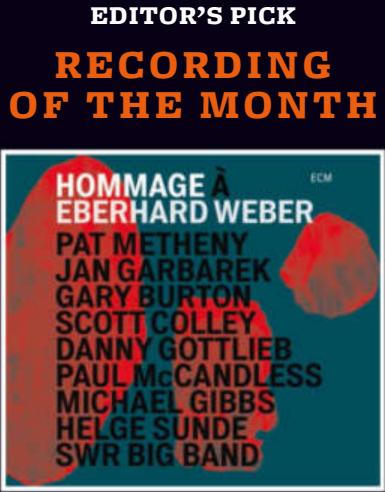
RECORD REVIEWS

There once was a joke about how technology would someday replace troublesome musicians: Instead of putting up with drummers being late to gigs, keeping irregular time, and stealing everyone else's girlfriends, a trouble-free robot could take over. It seems that some of those predictions have come true. This single disc documents two concerts held in Stuttgart, Germany, in January 2015, to celebrate the 75th birthday of hometown German jazz electric bassist Eberhard Weber, who has been unable to play since suffering a stroke, in 2007. Via tape loops and video samples of Weber playing, he nonetheless played a large part in his birthday celebration, particularly in the concerts' centerpiece, Pat Metheny's 30-minute "Hommage," a rare example of Metheny writing for big band and a tour de force of Weber's distinctive playing.

The disc opens with a massive bass chord from Weber, soon augmented by long, lean lines on soprano saxophone from Weber's former bandmate Jan Garbarek, with whom he played for over 25 years, in a Weber duet called "Résumé Variation."

Metheny, who played with Weber as a part of Gary Burton's band in the 1970s, and speaks in the liner notes about Weber "crystallizing a sonic footprint" that remains unique, saw a way of using the recordings to take the next step. "It came to me that it would be interesting to take the idea of *sampling* one step further; to find video elements of Eberhard improvising and then reorganize, chop, mix and orchestrate elements of those performances together into a new composition with a large projection of the Eberhard moments that I chose filling a screen behind us as we performed. It seemed like a new way to compose for me that would almost take the form of *visual sampling*."

While Weber's bass playing is the primary voice in "Hommage," Danny Gottlieb's fabulous, dexterous



Hommage à Eberhard Weber

Pat Metheny, Jan Garbarek, Gary Burton, Scott Colley, Danny Gottlieb, Paul McCandless, Michael Gibbs, SWR Big Band, Helge Sunde, conductor
ECM 2463 (CD). 2015. Martin Muhelis, concert prod.; Doris Hauser, Volker Neumann, Boris Kellenbenz, Pete Karam, Manfred Eicher, engs. DDD? TT: 69:48

PERFORMANCE ★★★★

SONICS ★★★★

stickwork, particularly on cymbals, provides a strong complement, as does double bassist Scott Colley, who has the enviable/unenviable task of playing in the foreground as a large projection of Weber haunts a screen behind him. The piece moves with fast, splashy tempos, and Metheny's writing is full of lively colors and varied textures, often from the trumpet and trombone sections of the SWR Big Band. Early on, vibraphonist Burton adds a measured, every-note-counts solo. Rather than regretful or elegiac—which would not have been surprising, considering Weber's illness—the mood of "Hommage" is primarily upbeat and triumphant. Near the halfway point, a bluesy riff leads to a section of bass notes and trombones in unison, before Metheny soars off in a rising, inventive solo with his characteristic ringing tone, rich in keyboard-like effects.

Following a climax at midpoint,

"Hommage" again features some fascinating interplay between Weber's recorded bass and Colley's live playing. Two-thirds of the way through, Metheny begins simply strumming the uneffected electric guitar before the piece settles into the vital rhythm of human breathing. The work's central, triumphant theme appears again in the brass, now surrounded by Weber's bass mixed with Metheny's guitar, and softly drifts down into an intertwining of echoes that fades into silence. The concerts concluded with several Weber compositions, including the delicate "Maurizius" (arranged by Michael Gibbs), which revolves around a theme played by the flutes of the SWR, as Burton on vibes and Oregon's Paul McCandless, on oboe, add tasteful if meandering solos. As is standard for all ECM projects, the sound is resonant and incredibly detailed throughout.

The idea for using recordings of Weber came from the bassist himself, who's lost his ability to play because of the stroke he suffered on the right side of his brain that paralyzed the left side of his body. In the years just preceding his stroke, in concerts with the Jan Garbarek Group, Weber often played improvised solo-bass interludes between tunes. When he'd recovered enough to work, Weber edited these interludes, mixed them with keyboard parts he played, as well as newly recorded parts by Garbarek, Michael DiPasque (drums, percussion), and Ack van Rooyen (flugelhorn), and built a new work, *Résumé*, released in 2012. *Encore*, a second collection of new works based on older samples, was released earlier this year.

In a 2013 interview with John Kelman published on AllAboutJazz.com, Weber talks about these works. "It's kind of interesting because it's the last track on *Résumé*, and it's the last recording that exists for me because the solo was recorded about two weeks before my stroke, and there are no other recordings. So this track, 'Grenoble,' is the last recording that exists anywhere of me playing bass." —Robert Baird ■

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CLASSICAL


BRAHMS
Piano Concertos 1 & 2

Daniel Barenboim, piano; Berlin Staatskapelle, Gustavo Dudamel
 Deutsche Grammophon 479 4899 (2 CDs). 2015.
 Friedemann Engelbrecht, prod.; René Möller, eng.
 DDD. TT: 112:10

PERFORMANCE ★★★★★
SONICS ★★★★★

These works, composed 22 years apart, are an accurate portrait of Brahms's creativity. Hearing them side by side, one hears the crucial differences: The first work is in-your-face and more aggressively interesting, with its huge drum rolls, slashing strings, then winds, then horns, the piano entering after four minutes with a thoroughly understated theme. It remains an anxious piece despite any understatement, and the orchestral trills and outbursts always cause alarm, and throughout, piano and orchestra seem adversarial. This monumental work can only be listened to carefully; it refuses to be background music. Concerto 2 and its orchestra get along better, the beautiful, quiet horn solo with which it begins joined just as gently by the piano. Then, of course, the power is brought out again, and the anthem-like theme is thrilling.

Barenboim never tires, and impresses from start to finish. But if you compare these performances with the best of his three previous recordings, from 1991 with Sergiu Celibidache (Euroarts DVD), these fall short. From Dudamel's dour opening of Concerto 1, one realizes that he's working too hard to make the climaxes overwhelm; frequently, Barenboim follows suit and struggles for volume. Barenboim is more his own man in the central movements, which manage lyricism and excitement at once. Concerto 2's final movement contains some fine moments of chamber-like cooperation between instruments, and it's an exciting finale. But in all, there's something awkward about these performances.

—Robert Levine


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Marie-Claude Chappuis, soprano; Mark Milhofer, tenor; Marcos Fink, Gyula Orendt, Johannes Weisser, baritones; Berlin State Opera Chorus, Academy for Ancient Music Berlin, René Jacobs
 Harmonia Mundi 902200.01 (2 CDs). 2015. Martin Sauer, prod.; René Möller, Teldex Studio Berlin, engs.
 DDD. TT: 92:52

PERFORMANCE ★★★★★
SONICS ★★★★★

First presented in Rome in 1600 for the entertainment of 35 Catholic Cardinals and a huge gaggle of priests, this is clearly an oratorio, possibly the first opera. No doubt it was not merely recited but presented as a spectacle, and the orchestration and forces involved are grand, but those do not an opera make: The soul (anima) is searching. The world (mondo) attempts to lead the body (corpo) into sinful longings; pleasure (piacere) also tempts, with lust, power, and wealth. Luckily, intelletto, with good counsel (consiglio), makes the old anima look toward heaven. There are more, but forget them.

Vocally, de Cavalieri alternates choruses with simple melodic, strophic "songs," recitative, and some madrigal-like parts; many tunes are related to specific characters and are repeated throughout. Some might find such directness dull at first, but oddly, the more repetitive it becomes, the more captivating. And it is undeniably beautiful music. It may just be a masterpiece.

Jacobs has augmented the simple bass line; who knew so many instruments could be plucked, or that woodwinds could add enough spice for a vindaloo? Because de Cavalieri eschews polyphony, every word is intelligible, and the singers dramatize their roles as if they mattered—they're opera singers, but with early-music sensibilities. Opera or not, this is gorgeously played and recorded, with great depth and presence.—Robert Levine

ROCK/POP


JON CLEARY
Go Go Juice

Thirty Tigers/FHQ FHQ005 (CD). 2015. John Porter, prod.; Tony Daigle, eng. DDD? TT: 40:43

PERFORMANCE ★★★★★
SONICS ★★★★★

Jon Cleary arrived in New Orleans a guitarist, and began his piano career filling in for James Booker at the Maple Leaf. Cleary's musical acumen and feel for New Orleans R&B made him a favorite on the local club circuit, and he began fronting the Meters-style funk band the Absolute Monster Gentlemen. He became a regular in the Piano Night festivities during Jazz Fest, and has pursued dual careers as bandleader and accomplished solo pianist, and written scores of original songs.

His last album, *Occapella!* (2012), was an outstanding collection of Allen Toussaint songs expertly personalized by Cleary's now-unique style. It's much harder to distinguish yourself in the funk format, but Cleary does it with *GoGo Juice*, easily his best album as a leader. He sounds completely comfortable; after 35 years in town, he's damn well earned his stripes.

Producer John Porter has captured Cleary in top form, playing keyboards, bass, guitar, and percussion. Bandmates Terence Higgins on drums, Calvin Turner on bass, and Derwin Perkins on guitar wrench and slide their way through the meticulously funky rhythms. Listen to them subtly turn the beat around in "Pump It Up," a Caribbean gem not to be confused with Elvis Costello's song of the same title. Cleary mines the vernacular for the delightful "Boneyard" and the awesome title track. In "9-5" he matches a critique of greedy go-getters ruining New Orleans in the name of progress with the sentence to Angola prison referenced in the New Orleans classic "Junko Partner." And with the Dirty Dozen horns playing Toussaint's charts, Cleary really has his GoGo working.

—John Swenson



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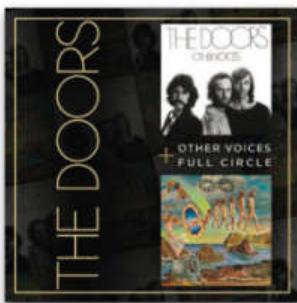
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THE DOORS
Other Voices / Full Circle

Elektra/Rhino R2-547628 (2 CDs). 1971, 1972/2015. The Doors, prods.: Bruce Botnick, prod., eng., remastering. AAD. TT: 84:08

PERFORMANCE ★★★★★ SONICS ★★★★★

The Who did. Led Zep didn't. What a band does following the death of a key member often boils down to pride, ego, and looming mortgage payments. But Ray Manzarek, Robby Krieger, and John Densmore opted for artistry, cutting two albums and touring after the sudden demise of that Morrison dude. Though common wisdom routinely assigns an assessment of "meh" to *Other Voices* (1971) and *Full Circle* (1972), close examination confirms the three surviving Doors as well-rounded jazzbos and blues cats—not to mention sharp songwriters—ready and able to rock on.

This twofer reissue solidifies that notion, in part because original Doors engineer Bruce Botnick did the remastering, resulting in an impressively wide soundstage that fully showcases each member's chops, especially Manzarek's keyboard work. From the sinewy Latin rock of *Other Voices*' standout "Ships w/ Sails" (its lengthy instrumental segment marking it an obvious descendant of "Light My Fire" and "When the Music's Over"), to the bluesy, "Roadhouse Blues"-styled boogie of *Full Circle*'s "It Slipped My Mind," to the jazzy strut of "Treertrunk" (a rare, non-LP British B-side), there's plenty here to like. Granted, there are also weak tracks and cringe-worthy vocals; by the time of *Full Circle*, the stockpile of songs had thinned, inspiration was clearly on the wane, and the trio ultimately realized it was time to put the beast to rest.

Wax aficionados will also cheer the 180gm vinyl edition its accurate reproduction of *Full Circle*'s original "zoetrope" foldout sleeve.—Fred Mills



THE GRATEFUL DEAD
Dave's Picks, Volume 14

Rhino R2-548604 (3 CDs). 2015. Grateful Dead, David Lemieux, prods.: Rex Jackson, Jeffrey Norman, engs. AAD. TT: 3:13:21

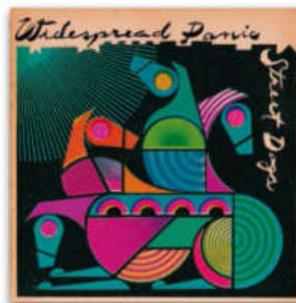
PERFORMANCE ★★★★★ SONICS ★★★★★

Volume 14 documents a historic moment: a weeklong stand at New York City's Academy of Music in March 1972 that was, in effect, a dress rehearsal for the epochal Europe 72 tour. Ron "Pigpen" McKernan, the vocalist and keyboardist who was the hard-core blues soul of the band, had been in ill health and had missed the tour the previous fall, but was back in top form for these dates, the last he would play in the US. A year later, he was dead. Pigpen wrote and here sings "Chinatown Shuffle," "Mr. Charlie," and a powerful new song. "The Stranger (Two Souls in Communion)."

But Pigpen's real role in the Dead was to whip the band into a frenzy, and he launches them into a spectacular "Good Lovin'" that morphs into a "Wang Dang Doodle" variation that yields great improvisational call-and-response exchanges with Phil Lesh on bass and Jerry Garcia's stinging electric guitar.

Historic moments abound: Bob Weir's new song, "Looks Like Rain," with Garcia on steel guitar; "Playing in the Band," which begins to sprout wings as a base for an extended jam; and "Truckin'," which opens up into an 18-minute jam for the first time, a liftoff that extends through "Drums," "The Other One," "Me and My Uncle," and back to "Drums."

The vocals are overwhelmed by the instruments in places, but the overall ambience is really good, the imperfections actually adding to the sense of transcendence the best live concerts convey. The energy might also be boosted by an almost imperceptible goose of the tape speed.—John Swenson



WIDESpread PANIC
Street Dogs

Vanguard 37865 (CD). 2015. John Keane, prod.; {xxx?}, eng. DDD. TT: 60:14

PERFORMANCE ★★★★★ SONICS ★★★★★

Five years between studio albums gave this veteran band a devastating bite on what is an instant classic. John Keane's production—cutting them as if he were making a live recording, at Echo Mountain Studio, in Asheville, North Carolina—captures the band's vitality as well as the nuances of their instrumental interplay. Lead guitarist Jimmy Herring and bassist Dave Schools are the main improvising voices, but JoJo Hermann's keyboards add harmonic depth and texture, kicking the great "The Poorhouse of Positive Thinking" into a higher gear, while John Bell's rhythm-guitar work has reached a new level of interaction with Herring. Percussionist Sunny Ortiz and drummer Duane Trucks really kick the polyrhythmic can down that dusty road on the compelling rockers "Steven's Cat," "Welcome to My World," and "Street Dogs."

Bell's songwriting is as sharp-witted and thought-provoking as ever, but his singing has matured over the years; he can now deliver a gruff-voiced vocal over the raging band with crooner-like ease and dynamic control. He never has to scream. The Jefferson Airplane-esque "Angels Don't Sing the Blues" is a masterful piece of contemporary folk psychedelia that builds to a softly swinging finale, with Herring at his jazz-influenced best.

Widespread Panic has always been known for its deep-track covers, and there are three gems here: an apocalyptic version of Alan Price's "Sell Sell," a rough-and-tumble read of Willie Dixon's "Tail Dragger," and a near-metal take on Murray McLaughlin's "Honky Red."—John Swenson

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JAZZ

**CHRIS DINGMAN***The Subliminal and the Sublime*

Chris Dingman, vibraphone; Loren Stillman, alto saxophone; Fabian Almazan, piano; Ryan Ferreira, guitar; Linda Oh, bass; Justin Brown, drums. Inner Arts IAI001 (CD). 2015. Chris Dingman, prod.; Paul Antonelle, eng. DDD. TT: 60:52

PERFORMANCE

SONICS

With almost the same band that appeared on his captivating 2011 debut, *Waking Dreams*, ace vibraphonist and composer Chris Dingman follows up with *The Subliminal and the Sublime*, an ode to nature. It's a suite in five sections, three spanning nearly 20 minutes each, all unfolding like a story in a gorgeous legato arc. In place of Ambrose Akinmusire's trumpet from *Waking Dreams*, we hear the otherworldly, startlingly original electric guitar of Ryan Ferreira.

Though the album opens in a faraway, ethereal zone with "I: Tectonic Plates," and now and then returns to those moments of exalted quiet, there's plenty of rhythmic heft and assertiveness to the compositions. Loren Stillman's alto saxophone provides a consistent melodic focus, and Ferreira's protean guitar sometimes doubles lines, or alters the texture with scratchy chords that subtly pierce through before receding. When Dingman takes the melodic lead, his entrances are sure-footed and the notes sing out clearly. It's a sonic gem: the softest passages are full and present, the band's climaxes big and inviting, never harsh.

After nine minutes of fluid and intricate interplay, "II: Voices of the Ancient" falls completely silent, the movement only halfway through. Ferreira and Dingman introduce a new, contrapuntal theme, and the piece is born again. "IV: The Pinnacles," the longest movement, returns briefly to the pastoral scene-setting of the opening, while "V: All Flows Forth" occasions go-for-broke improvisation from pianist Fabian Almazan, who elicits a fiery response from drummer Justin Brown. —David R. Adler

**HANK GARLAND***Jazz Winds from a New Direction*

Hank Garland, guitar; Joe Benjamin, bass; Gary Burton, vibes; Joe Morello, drums. Columbia/Speakers Corner CS 8372 (LP). 1961/2015. Don Law, Frank Jones, prods.; no eng. listed. AAA. TT: 30:26

PERFORMANCE

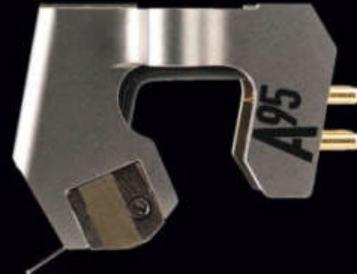
SONICS

Truth be told, he was playing jazz all along. But it took this album, which surprised music insiders in both Nashville and New York, to convince the larger music world that guitarist Hank Garland, inventor of the power chord on electric guitar and an essential part of such classics as the Louvin Brothers' *Satan Is Real* and Elvis's *Elvis Is Back!*, could hold his own in jazz. Originally issued in 1961, in mono and stereo, *Jazz Winds* was reissued on LP only once before, in 1974. (These sessions are available in their entirety on a Sundazed CD, *Move! The Guitar Artistry of Hank Garland*.) *Jazz Winds* also proves that famed Nashville producer Don Law could excel at recording something other than country music. While Joe Morello's brushes have always been a little too prominent in the mix, the sound in this new vinyl pressing from Speakers Corner is wonderfully detailed and alive. The album's two stylistic extremes are the slow, smoky swing of "Relaxin'"—Morello and bassist Joe Benjamin set the pace as Garland shows off his rich hollow-body tone and inventive approach to harmonics, and you can literally hear Gary Burton's musicianship grow during his solo—and the album's most famous track, the charged "Move," in which Garland, his sure, rapid fingers never faltering, shows how much he'd learned from Charlie Christian and Django Reinhardt. *Jazz Winds* remains a tantalizing musical rune of what Garland (1930–2004) might have become if a car accident in September 1961 hadn't robbed him of his ability to play. —Robert Baird

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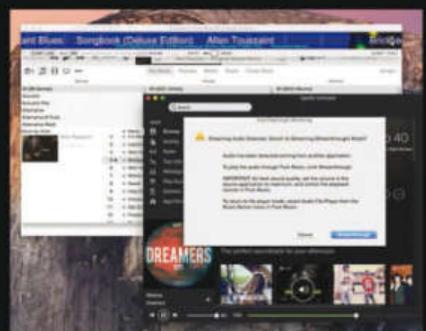
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Digital Indulgence



BARRY HARRIS

Plays Tadd Dameron

Barry Harris, piano; Gene Taylor, bass; Leroy Williams, drums
Xanadu Master Edition/Elemental 906071 (CD). 1975/2015. Don Schlitten, prod.; Paul Goodman, eng.; Zev Feldman, reissue prod. ADD. TT: 42:43

PERFORMANCE ★★★★★
SONICS ★★★★★

Zev Feldman was first noticed for his lavish productions of historical releases on the Resonance label. His new project is the Xanadu Master Edition series. In the 1970s, Xanadu was a repository of high-quality hard bop operated by Don Schlitten, who had previously produced important titles for Prestige. *Barry Harris Plays Tadd Dameron* is part of the opening salvo of six Master Edition reissues, with plans for 19 more. The deluxe CD packages provide complete discographical information, new liner notes, archival memorabilia, and optimized sound.

Mark Gardner's original 1975 liner notes make much of the fact that Dameron, then dead 10 years, was in danger of being forgotten. That danger has passed. Today he is recognized as one of the great composers in jazz history. But this album was the first repertoire tribute to Dameron. Harris's interpretations are in-depth, imaginative, and authoritative, but in concentrated form, for piano trio. He is so thorough he might be conducting a recital, but recitals rarely embody so much joy. Dameron had a difficult life and died young, but his classics, such as "Our Delight" and "The Chase" and "Ladybird," are radiant spiritual affirmations. Harris rides their uplift and, atop Dameron's elegant, logical progressions, improvises intricate joy of his own. Dameron's light touch made up-tempo pieces like "The Tadd Walk" and "Casbah" lilting rather than hard. Still, the most beloved Dameron songs are the ballads. Harris renders "Soultrane" and "If You Could See Me Now" with the sensitivity that halowed texts deserve.—Thomas Conrad



SHAI MAESTRO TRIO

Untold Stories

Shai Maestro, piano; Jorge Roeder, bass; Ziv Ravitz, drums
Motéma MTA-CD-177 (CD). 2015. Shai Maestro, prod.; Vincent Mahey, Joe Marciano, engs. DDD? TT: 45:11

PERFORMANCE ★★★★★
SONICS ★★★★★

Most of the people who read this section of *Stereophile*, and all who write for it, believe that records are important. But records, especially studio recordings of jazz, are inherently limited.

At the Belgrade Jazz Festival in 2013, at midnight in a crowded, sweaty venue, the trio on *Untold Stories* played an extraordinary concert. Shai Maestro is an atypical pianist, less interested in theme-and-variation and linear development than in creating ecstasy, in waves. On rare occasions, live music can take you outside yourself.

Untold Stories is different. It is almost impossible for jazz musicians in a studio to ride the moment into release and catharsis. (The fact that four of these eight tracks are labeled "live" is irrelevant. There is no audible audience. The entire album sounds as if it was made in a studio.) Yet *Untold Stories* is a passionate, distinctive, organically unified work. Maestro is a technically sophisticated pianist who uses harmony (or lack thereof) in unusual ways. He is not interested in structural devices as destinations but as means to creating enveloping atmospheres and soundscapes. He is a shaman, if shamans can be unabashed romantics. Ziv Ravitz, one of the great unsung drummers in jazz, was maniacal in Belgrade; on this record, he is enigmatic and melodic. Pieces like "Looking Back (Quiet Reflection)" and "Painting" contain mixtures of simplicity, density, and lyricism—all subtly disrupted by Ravitz—that wash over you. *Untold Stories* does not sweep you away like live music—you can't quite get lost in it—but unlike that night in Belgrade, it is repeatable.—Thomas Conrad



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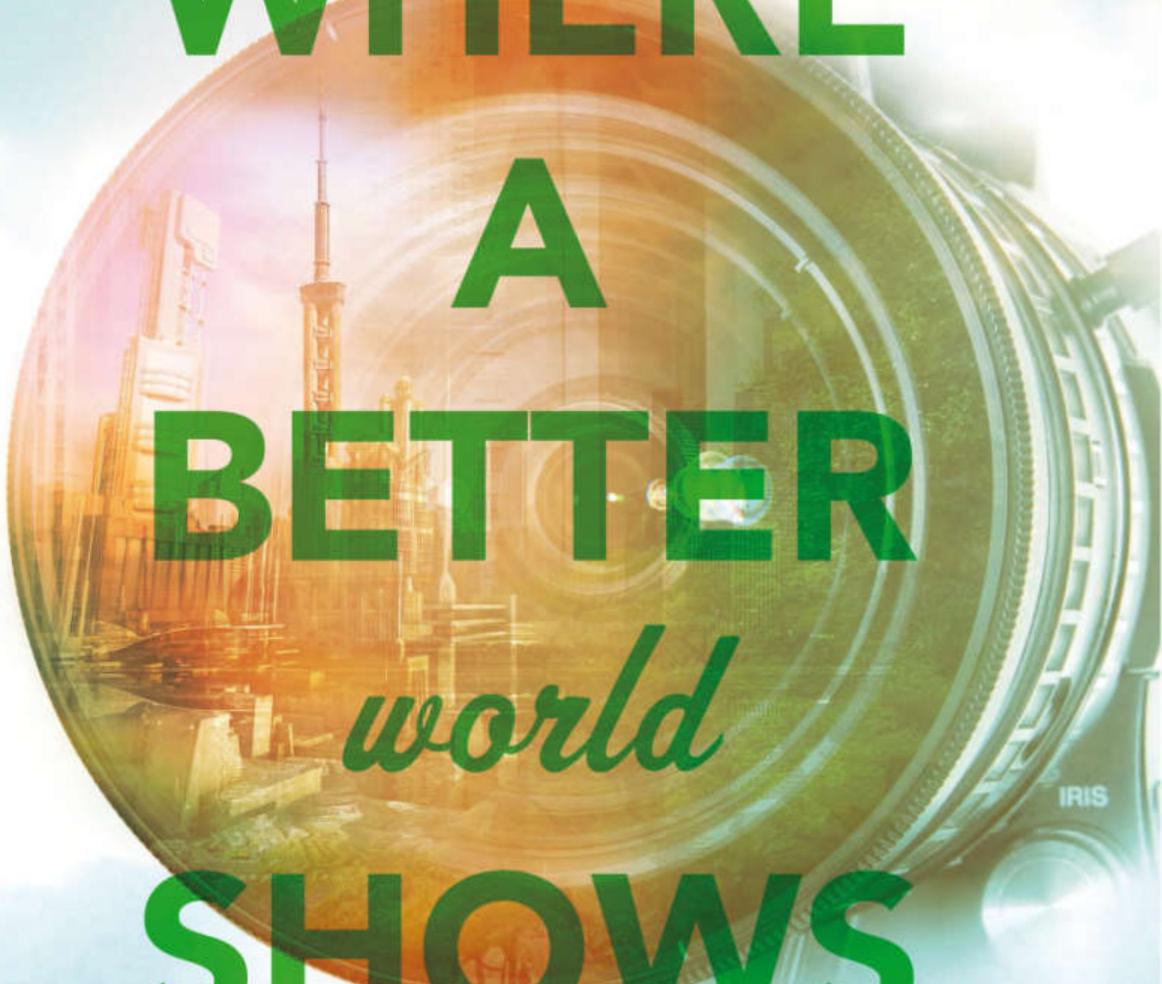
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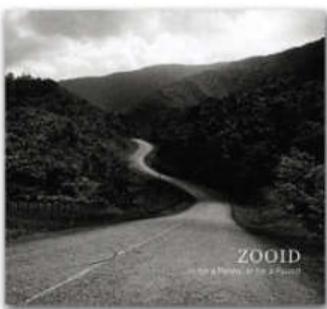
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HENRY THREADGILL & ZOID *In for a Penny, In for a Pound*

Henry Threadgill, alto saxophone, flute, bass flute; Jose Davila, trombone, tuba; Liberty Ellman, guitar; Christopher Hoffman, cello; Elliot Humberto Kavee, drums, percussion
Pi P158 (2 CDs). 2015. Liberty Ellman, prod.; Michael Marciano, eng. DDD. TT: 79:09

PERFORMANCE ★★★★★
SONICS ★★★★★

These two discs are the first from Henry Threadgill's Zoid, a group that has worked for over a decade, begetting an alternate tonal universe. Threadgill is at a creative peak with this relatively youthful band, which, at least for this session, didn't include longtime member Stomu Takeishi on acoustic bass guitar. Christopher Hoffman, often dipping into his cello's low register with pizzicato lines that dance and groove alongside drummer Elliot Humberto Kavee, superbly fulfills the bass function, as does Jose Davila on tuba and trombone. But no one in Zoid plays only a single role: the point of Threadgill's complex interval sets instead of conventional harmony is to prompt inevitable flux.

Guitarist Liberty Ellman, who plays only acoustic in Zoid, reaches new levels of ferocity as a soloist, and his rhythm work skitters and feints, bobbing in the waves of Threadgill's obscure harmonic system. Ellman also produced and mixed this, and his instincts couldn't be more in tune. Timbral subtlety and balance of parts are everything with Zoid, and Ellman gets a starkly clean result, from Threadgill's bold, declarative alto sax to his deep, dark, ruminative bass flute.

Four of the six pieces verge on 20 minutes each—longer than usual for Zoid. The title of each long movement indicates a focus on a single instrument—eg, “Dosepic (For Cello)”—yet nothing sounds obviously like a concerto. Every voice is essential almost all the time. And raw transitions from knotty funk to slow rubato show a new side of the band.—David R. Adler



BRAD ALLEN WILLIAMS *Lamar*

Brad Allen Williams, guitars, electric sitar; Pat Bianchi, organ; Tyshawn Sorey, drums
Soundsdifferent SR-051 (CD). 2015. Brad Allen Williams, prod.; John Davis, eng. AAD. TT: 38:09

PERFORMANCE ★★★★★
SONICS ★★★★★

If you don't know the guys on this record, you are forgiven, although Tyshawn Sorey is an emerging drummer in left-of-center jazz, and Pat Bianchi is beginning to get attention as an uncommonly musical organist. (He finished second under “Organ” in the “Rising Star” category of the 2015 *Downbeat* Critics Poll.) The least-known musician here is the leader, Brad Allen Williams, who played on José James's *While You Were Sleeping* (Blue Note).

The electric guitar is the instrument most often employed for ostentation and egotism. It is striking that, in his debut as a leader, Williams goes so far in the opposite direction. *Lamar* is mostly hushed, inward, and rapt. It is an analog project, recorded with all three players in one room.

In press notes, Williams says, “This album is exclusively about creating and capturing a feeling.” *Lamar* is musical heroin—warm, intensely pleasurable, addictive—but not dangerous. Williams slowly marks out “Stairway to the Stars” in golden, glowing guitar notes, often pausing to allow emotion to catch up and carry him to the next segment of the song, which he then reimagines. All around him, Bianchi spreads sound like velvet. The effect is euphoric but not lulling, because Williams and Bianchi take vivid solos. “More Than You Know” is just Williams, the melody imparted in near and distant points of light. “Galveston” is hesitant, fervent, haunting, version of Jimmy Webb's tribal Texas song.

The abiding warmth of this album is preserved in the sensuous intimacy and naturalness of John Davis's analog recording.—Thomas Conrad

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c. Total Paid Distribution	44,581	44,175
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1. Free or Nominal Rate Outside- County Copies included on PS Form 3541	3,981	3,264
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4. Free or Nominal Rate Distribution Outside the Mail	1,298	500
e. Total Free or Nominal Rate Distribution	5,279	3,764
f. Total Distribution	49,860	47,939
g. Copies not Distributed	5,705	5,121
h. Total	55,565	53,060
i. Percent Paid	89.4%	92.1%
16. Extent and Nature of Circulation:		

	Average No. Copies Each Issue During Preceding 12 Months	No. of Copies of Single Issue Published Nearest to Filing Date
a. Paid Electronic Copies	25,925	26,581
b. Total Paid Print Copies (Line 15c) + Paid Electronic Copies (Line 16a)	70,506	70,756
c. Total Print Distribution (Line 15f + Paid Electronic Copies (Line 16a))	75,785	74,520
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18. Signature and Title of Editor, Publisher, Business Manager, or Owner

Thomas Slater, SVP Consumer Marketing 10/1/2015

I certify that all information furnished on this form is true and complete. I understand that anyone who furnishes false or misleading information on this form or who omits material or information requested on the form may be subject to criminal sanctions (including fines and imprisonment) and/or civil sanctions (including civil penalties).

*From P.B., Charlotte, NC, on our XR3:
"WOW - [Redacted] - WOW!!"*

*From M.P., Sao Paulo, Brazil, on our Reference:
"I never thought a computer could make this
much of a difference. . . . a turning point in
digital audio."*

*From A.K., Singapore, on our new Revolution III:
"Frankly, I did not expect the magnitude of
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MANUFACTURERS' COMMENTS

Audience ClairAudient The One

Editor:

Thank you, *Stereophile*, for allowing Audience to publish our commentary regarding a disagreement that we have with a *Stereophile* "Recommended Components" listing for The One Personal Reference Monitor. Robert J. Reina graciously reviewed The One PRM by Audience (*Stereophile*, September 2013), stating, "Audience's ClairAudient One is an extraordinary speaker with superb resolution of detail, excellent dynamic contrasts, and subtle articulation of transients," and ranked [it] Class B. However, in the "Recommended Components" listing, a statement was added that it "couldn't go very loud." This statement was not in the review, and actually, the opposite was said: BJR wrote that The Ones played very loud in a large room (15' by 35') with "no trace of compression or strain." In fact, the music was so loud that Bob's wife asked him to turn it down.

The added "couldn't go very loud" comment is extremely confusing to us. So much so, we sent a pair to Phil DuCote (Hickory Audio Labs), an independent third-party expert, to measure output *vs* distortion. Phil, who has been measuring/designing speakers since the mid-1970s, concluded that The Ones play loud—so loud, in fact, he needed earplugs to finish the test. Loudness tests were conducted with the mike at 46", where the SPL reached 110dB with exceedingly low levels of distortion, corresponding to BJR's experience.

To be forthright, there is a review section where BJR mentioned a caveat. He played The Ones in a huge room with low-frequency organ music so loud that he overdrove one driver. This is not the same as saying The Ones "couldn't go very loud"! There were no measurements to say how loud they played before he damaged them. ("For the first time in 28 years of reviewing speakers, I'd damaged a review sample through my own carelessness.") This was not a negative mark against The Ones, as all speakers have limits and should never be pushed beyond those limits. This was a caveat of the reviewer, not of the speaker.

So, we are confused by the added phrase in "Recommended Components" of "couldn't go very loud." We think the



Audience
ClairAudient
The One.

caveat BJR was trying to convey is that The Ones played so loud and without compression, even in large environments, that they will fool you into believing they are much larger speakers, almost without limits, which can lead them to be overdriven if you are careless. The Ones are intended to play on desktops and in small rooms, and, as BJR's review revealed, they played successfully in larger environments. However, when they are played within their intended environment, we are in agreement with BJR's conclusion: "For \$1000, I can't imagine obtaining significantly better sound than from a pair of ClairAudient Ones properly set up and used within their dynamic range low-frequency extension limitations." The added "couldn't go very loud" remains a mystery.

John MacDonald

President

Lenny J. Mayeux J.D.
Vice President of Sales & Product Development
Audience

While the magazine's reviewers can recommend a rating in "Recommended Components," the final decision on the rating is mine. Similarly, the "couldn't go very loud" was my opinion, based primarily on my own experience of The Ones when I had the speakers in-house for measurement. (As we state in the introduction to every "Recommended Components," "The listing takes into account continued experience of a product after the formal review has been published.") But as Bob Reina did have very positive things to say about The One, I recommend that would-be purchasers audition the speaker for themselves to make sure it does play sufficiently loud for their own circumstances.

—John Atkinson

THIS ISSUE: Audience, GamuT, Antipodes, Allnic, Schiit, UpTone, Benchmark, Meridian, Abis, and PS Audio comment on our reviews of their products.

GamuT RS7

Editor:

We want to thank *Stereophile* and John Atkinson for his excellent, extensive, and insightful review, and for his high praise, of GamuT's new RS7 loudspeaker (September 2015).

John's many compliments echo similar compliments from countless valued listeners about GamuT's RS7. That John, during his review, got "inspired" and kept reaching for albums he hadn't heard in a long time, and heard new aspects of the music, was a treat to read. The fact that John heard "the GamuT RS7's capacity for wide dynamic range," "more image depth" than he's used to, coupled with "a precision I usually associate with high-performance minimonitors," means that John, too, heard and "got" the RS7s. For that, we are very pleased.

GamuT continues to introduce innovative technologies to bring us all closer to the music we so love. The RS cabinet's unique curved shape, made of 21 wood layers and allowing us to use minimal cabinet-damping material, and the stepped-slope crossover technology, are just two of the innovative technologies that create the extraordinary, natural-sounding RS speakers. As JA pointed out in the January 2015 issue, when he said that two speakers with similar measurements can sound very different, measuring tells you only part of the story. This is very true with a GamuT RS speaker.

For example, because of GamuT's innovative design—in which the woofer and midrange driver play inside the same enclosure—measuring just one of those drivers while feeding signal to both will result in a measurement containing sound from both the woofer drivers *and* the midrange driver. The upper-frequency artifacts ascribed to the woofers are actually sounds coming from the midrange, and the low-frequency level measured and ascribed to the midrange actually comes from the woofers. This is easily proven by looking at the summed response, which shows a seamless blend between the woofers and the midrange driver. The special DC crossover for the midrange works

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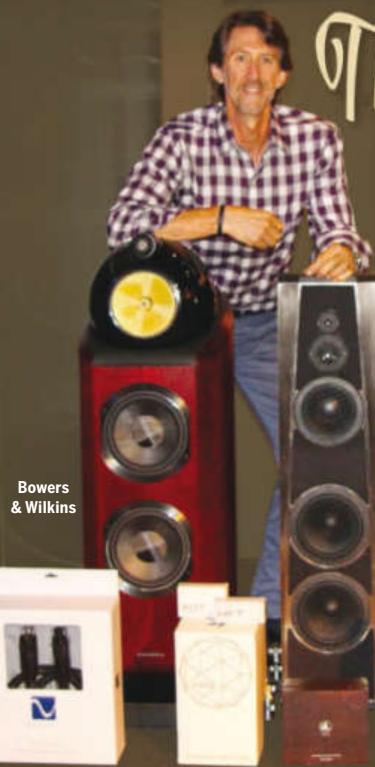


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flawlessly, but since the mid and woofers share the same volume, the woofers will push the midrange to move in the low-frequency region as well—not because of the crossover. In fact, the midrange does not receive any more low-frequency input from the crossover than it would from a conventional crossover design.

The benefit is extra cooling of the midrange driver's voice-coil, which dramatically lowers the distortion at high SPLs. At the same time, the midrange driver is not restrained by the air contained inside a small closed chamber; as in conventional designs, this is a part of the secret of the RS7's phenomenal dynamic range.

The measured frequency response is actually the result of GamuT's special technique used to even out the enormous differences in dispersion between the midrange driver and tweeter in their shared crossover area. This means that the radiated energy pattern coming from the RS7 is extremely linear, thereby recreating the natural sound and harmonic structure of instruments and voices, as John Atkinson so beautifully described.

It's been a great honor to have a reviewer as experienced as John Atkinson audition our RS7 speakers with his usual thoroughness and love for music. We invite interested music lovers to bring their favorite music to their GamuT dealer and experience the fantastic musical involvement from a pair of RS7s.

Benno Baun Meldgaard
GamuT Audio

Antipodes DX Reference

Editor:

Thanks so much for John Atkinson's thorough evaluation of the DX Reference (October 2015). Sorry to hear of the death of his Mac mini, but the timing couldn't have been better for us!



There are a lot of misconceptions regarding servers, the main one being that a dedicated computer (like JA's mini) or laptop is "just as good" as a music server. In some cases, this is sadly true (which does not speak highly of those servers), but as JA conveyed in extensive detail, our DX Reference is designed solely to store and play music, and is far superior in every way to a standard computer used as a music server.

There are no ancillary functions which create noise and make our unit complex

to operate; all hardware and software choices are made based upon extensive listening tests to ensure the lowest noise possible, allied with extremely pure sound quality.

The result, as he noted, is "a greater sense of ease, of [palpability] to the imaging, of involvement with the overall sound"—and we of course agree with him that "that's what it's all about."

In audio, there's no one whose recommendation is more meaningful than JA's. Thanks so much for that "highly recommended. I said *highly*." It truly means the world to us.

So sorry to offend JA's frugal upbringing. We are relaunching the DS series, which may offend him less in that regard!

Mark Jenkins,
Founder & CEO
Antipodes Audio

Allnic T-1800

Editor:

Thank you to Art Dudley for his review of the Allnic T-1800 EL34 integrated amplifier. We are very happy that a true-blue EL34 aficionado such as Mr. Dudley appreciated the T-1800 so much, and that it provided him with such satisfaction.

The T-1800 was designed to bring out what we think are the best characteristics of the EL34, and to facilitate deep enjoyment and appreciation of the broadest range of recorded music. Consequently, reading about how our little integrated compared so positively to a product like the Shindo monoblocks was gratifying indeed.

Our thanks again for listening to the T-1800, and for a thoughtful and lively review.

Kang Su Park
Allnic Audio

Schiit Audio Wyrd

Editor:

As Schiit Audio builds USB-interfacing D/A converters from \$99 up, it is no surprise that we have sold tens of thousands of units. With this sort of sample size, we have discovered that one USB port does not necessarily equal another USB port, even when both are located on the same computer. We have found that the USB port/cable system that connects to our DACS widely varies, not only in the reliability of the ports, but also in how long the USB cable attached can be driven.

Hence the Wyrd, which has now been out for over a year. Simply stated, it is a quartz-crystal-locked USB hub, with a substantial power supply to drive the downstream USB device. This supply delivers 500mA to the driven device,

as specified in the USB2 and Microsoft Windows specs. It is designed to be driven by all but a totally broken USB socket, and so it does. It is Schiit Policy not to make sonic arguments for anything we make that we cannot explain—therefore, our Wyrd claims are 100% functional rather than sonic.

This has not prevented two manufacturers from copying the Wyrd, one on an almost part-per-part basis, and both arguing sonic benefits. As far as who wins the Wyrd sound game, I am bereft of words to argue a solid technical case. We found that, as well as solving a problem, it was fun to listen to. After all—this is a hobby.

The most boring aspect of the complete record-playback chain is primarily based on solid, hard science. However, it is inescapable that some artistry is also involved. This makes audio more complex than that which can be solved on the basis of sound science arguments. Congruently, it also dictates caution when arguing the merits of technologies such as mounting cones, speaker-wire suspenders, teleporting devices (no kidding—I just saw an advert for one!), etc. Please remember that, when trying to make sonic value judgments about the Wyrd and its competitors/emulators, YMMV.

The one claim we make is that ours is much longer than theirs—in the length of USB cable it will drive.

Thanks for taking the time to check our stuff out!

Mike Moffat
Schiit Audio

UpTone Audio USB Regen

Editor:

While we wish to thank Michael Lavorgna, Kalman Rubinson, and John Atkinson for their terrific team coverage of our USB Regen, I would be remiss not to take this opportunity to express our tremendous gratitude to the audiophiles and music lovers around the world who have made the Regen a runaway success—well beyond what we had initially imagined—in just a few short months.

As I pen this reply in late August, over 2000 units have been sold since its launch in May—and with zero advertising! That's crazy, especially for a small firm such as mine, but it is a testament to the power of word-of-keyboard, as continuous and near-unanimous reports are shared by Regen users around the world, hearing results with DACs, computers, and streamers, from modest to mega.

The Regen circuit was designed by my close friend John Swenson. He is a truly brilliant engineer whose day job is designing the power-distribution networks

deep inside large custom computer chips (the sort of devices that run high-speed network data centers), so his knowledge and understanding of the root causes and physical factors at play in digital interfaces are formidable. While his audio design talents are broad and considerable—several other groundbreaking products are in the works—we chose to tackle the shortcomings of the ubiquitous USB interface first. When Michael Lavorgna reviewed our USB Regen for *Stereophile's* sister website *AudioStream.com*, he was gracious in publishing our concise “white paper,” wherein John explains the challenges inherent in USB input circuitry and how the Regen addresses them. We encourage those interested to visit www.audiostream.com/content/uptone-audio-usb-regen to learn more about this topic.

With regard to John Atkinson's valiant attempts to measure differences at his DAC's analog outputs with the Regen in and out of the chain, allow me to paraphrase a recent post of John Swenson's from the *Computer Audiophile.com* forum, where the two of us hang out:

Measuring the signal integrity of the USB signal is something fairly easy to do with a 3-4GHz scope and an eye-pattern test. Jitter measurements are a lot harder[:] at the exceedingly low level we are looking at[,] it takes some rather expensive test equipment. Unfortunately[,] where a lot of the final jitter happens is inside the DAC chip[:] and that is essentially impossible to measure.

None of the standard audio tests have been able to find any difference in the analog audio output. Part of the problem here is that in order to make any sense, the analog-to-digital converter used in the test equipment must have lower jitter than the jitter you are trying to measure the effects of. People doing these measurements are using ADCs that have known jitter levels significantly greater than what the best DACs have. This makes these tests pretty useless for measuring the supposed effects caused by changes in jitter.

The theory I am going on for these effects is that the operation of the USB receiver is generating noise in the DAC's power and ground system, and this should be measurable. I'm putting together a test setup to better measure this. Yet that is still an intermediate effect[:] I don't know how to test the analog out well enough to actually measure the analog changes. I think I would have to build the world's best

ADC in order to do so. Don't hold your breath on that.

Improvements at this level do not cause changes to gross frequency response or distortion, yet they do make things sound “more real.” The problem is that nobody knows what the actual changes are that cause people to perceive the sound as being more real. If we did[,] it would be a lot easier to set up tests to look for it. And on top of that, because it is so intertwined with the aural perception system, it is probably different for different people.

So perhaps by the time this appears we will have published eye-pattern measurements to at least demonstrate the Regen's positive effect on USB signal integrity. But beyond that, everyone will just have to continue judging the merits with their own sensitive instruments—their ears. Of course, that's what ultimately counts for musical enjoyment.

Again, thank you for the lovely review, and remember: The best DAC you have never heard may be your own. It's great to *Regenerate!*

Alex Crespi
Up Tone Audio

Benchmark Media Systems AHB2

Editor:

Thank you for reviewing the AHB2 power amplifier. We believe that there is no other amplifier that matches the accuracy and precision of the AHB2. This makes the AHB2 very revealing and brutally honest. Kalman Rubinson's contrasting observations demonstrate these characteristics. The AHB2 produced spectacular results with the outstanding Bowers & Wilkins 800 Diamonds. In contrast, the AHB2 quickly revealed the shortcomings of lesser speakers at Kalman's vacation home. The AHB2 does not produce any audible distortion, and this means that the distortion produced by the loudspeakers is completely unmasked. Clean amplification exposes all of the flaws in the speakers. This naked reality hides nothing. These flaws can be masked by an amplifier that is rich in harmonic distortion. The added cloak of warm harmonics may hide the defects, but it also masks important musical details. The AHB2 is spectacular with



top-quality speakers, but it may be too revealing for lesser speakers.

Of the two sets of speakers used in the review, the B&Ws are by far the most difficult to drive. The AHB2 drives the B&Ws with ease.

John Siau
Benchmark Media Systems

Abis SA1.2

Editor:

Thank you for Art Dudley's thoughtful review of the newly revised SA1.2 tonearm. We looked at how we could improve the SA1, and believe we've built an arm that achieves excellent results at a reasonable price.

One item not mentioned in his Follow-Up was the change from “negative balance” to “positive balance.” That means we lowered the center of gravity of the armwand. Here is why:

In AD's original review, he noted an anomaly with setting balance. At the time of the review, I failed to realize that the center of gravity was higher than in most tonearms. Sometimes the language barrier between Japanese designer and American distributor can be problematic, and I missed an important detail when translating. AD's colleague Michael Fremer has written about the differences between positive and negative balance, and there are benefits to both methods.

It was decided to lower the center of gravity so that the arm would conform to the “norms” of tonearm design, since the vast majority are positively balanced. It was a minor adjustment, but it does change the behavior of the arm slightly. Instead of “tipping over” when setting the arm to zero tracking force, it returns to its resting place after being deflected. However, the improvements you heard were to do with bearing and geometry.

For Thorens TD 124 users, I can recommend a thinner material: $\frac{3}{8}$ ” phenolic board. It is what I am using, and I haven't had issues yet. It's thinner than the stock board originally sent by Thorens, and even thinner than the material Art is using for DIY armboard. It's more rigid, denser, and gives extra clearance for the cueing mechanism. It's also great as a material for tube sockets.

Phillip Holmes
Mockingbird Distribution
Abis

Meridian Audio Prime

Editor:

Thank you, John Atkinson, for confirming the correct digital performance of the Prime you reviewed. I apologize for the confusion introduced by this early power supply.



The Prime Power Supply can provide two things: 1) a very low-noise power source for the amplifier, and 2) the ability to pass through the USB while replacing the 5V USB power. In the Prime, the digital section is powered over USB to ensure that, when the Prime is used solely as an analog amplifier, these sections are silent.

The difficulty in interpreting the early measurements comes from using both features of the early Power Supply, where there can be a small cross-coupling of the USB 8kHz framing clock, to a degree that depends on the particular PC and cables used. So the spurious in figs. 1 and 2 are common-mode noise introduced via USB that is substantially signal independent, even though it looks like distortion.

I imagine the reason JA preferred the sound with the Prime Power Supply is that there are no digital errors, no quantization effects, and the amplifier itself responds well to an improved power

source. The USB framing-clock breakthrough is an uncorrelated interfering noise which matters less.

Now, if you listen to the Prime powered by its Prime Power Supply while feeding the USB directly from the PC, you might be even happier with sound and measurements!

Bob Stuart
Meridian Audio

PS Audio PerfectWave DirectStream Yale

Editor:

Our thanks once again to Bob Deutsch for a thorough overview of the Yale OS update. Reading the history of our early updates, we were reminded just how confusing those numerical labels were, and hope that our mountain names are easier to follow.

We appreciate Bob's discussion of the Beta process our updates undergo through our Community Forum. Our community is a valuable resource, and they have provided useful feedback in sorting out improvements from mere differences. Our friend and colleague Arnie Nudell also lends his ears to the process, and has been a tremendous help.

Bob's comments about the tonal-balance, soundstaging, and imaging im-

provements in Yale are spot-on. We had thought that the DirectStream/BHK 300 monos/IRS V system was pretty amazing with Pikes Peak, but the improvement made by Yale was absolutely stunning.

The improvements are totally evident even with plain ol' CDs—a phenomenon we don't even pretend to understand. Given the immense amount of music



available in the CD catalog at this point, we feel that's a huge plus.

We are pleased to offer DirectStream owners the possibility of state-of-the-art performance for decades to come—but please don't confuse that with "perfect sound forever"! We take the trust of our owners very seriously, and are proud that DirectStream has the potential to be updated... well, forever.

We will try to hold off on the next OS update for a while—just to be merciful to reviewers and editors!

Paul McGowan & Ted Smith
PS Audio

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— *The Absolute Sound*, September, 2014



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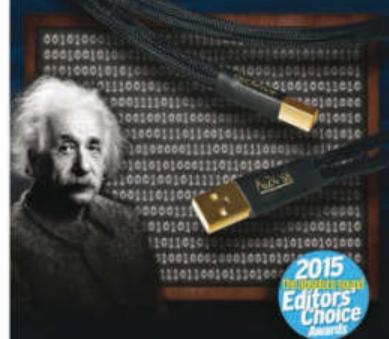
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AURAL ROBERT

BY ROBERT BAIRD

All The Little Pretties Raise(d) Their Hands

How to write about Bruce Springsteen's *Born to Run* turning 40? Bang! Several ways immediately come to mind:

Which records seriously changed your life? If, to you, music means from *a lot to everything*, then at some point you've had epiphanies, large and small, when you've heard certain albums or tracks. It's the ol' can-you-remember-where-you-were-when-you-heard... *The Beatles* (White Album)? *Blonde on Blonde*? *Born to Run*? *Kid A*? *Elephant*? *The College Dropout*?

Nah, perhaps:

"Psssst. Got any bootlegs?"

"Nah, man. Yoko Ono will kill me!"

Let's be honest. At a certain point studio recordings and official live records aren't enough. Obsession demands bootlegs of live and studio recordings. Truth be told, anyone who goes to the trouble and expense of obtaining CD copies of alleged "soundboard tapes," whether from Bayreuth or Passaic, has already bought everything that's been officially released at least twice over.

I've heard many bootlegs—everyone from Clifford Brown and Sonny Rollins in Virginia Beach to AC/DC in Paris with Bon Scott to a particularly wonderful Randy Newman live show—but no one makes unauthorized live recordings, the Beatles included, like the Boss.

Or, finally:

After evenings blasting down streets, dodging cops, banging "Thunder Road," "Blitzkrieg Bop," and "Blame It on Cain," *Paranoid* and *Machine Head* didn't sound so good anymore. The first Ramones record (February 1976), Television's *Marquee Moon* (February 1977), Elvis Costello's *My Aim Is True* (July 1977)—and, before all of those, the immortal *Born to Run* (August 1975)—suddenly, music was rushing forward, and either you went with it, or you turned off your ears and stayed happy in the past. To those interested in the future, everything that had come before sounded as if it was idling, standing still.

In director Thom Zimny's excellent if slightly overlong documentary *Wings for Wheels: The Making of "Born to Run,"* included in the absolutely essential *Born to Run: 30th Anniversary Edition* (2005), Springsteen talks about how the record has "the feel of one endless summer night," how he had "a lot of ambition," and that it was the story of "a journey beginning and having someplace to go," but not knowing exactly where that was. Music-critic-turned-life-long-Bruce-confidant/manager/producer Jon Landau might have captured it best when he said in the film, *Born to Run* is about Bruce "struggling to grow up" and finding out "what life really means." *Hammersmith Odeon London '75*, a film of the band's first-ever European show and the best reason to



buy that 30th-anniversary box—where Springsteen's scrubbily outfit uncannily resembles Kurt Cobain's later wardrobe—is a glorious document of that maturation.

With its film-noirish song titles, wall of sound sonics, and lyrics less dense than on Springsteen's first

two records, *Born to Run* became the template for the characters, scenes, and storytelling he would develop throughout his career. By all accounts, it was an ordeal to record—finishing the title track alone took six months. Bruce was prickly and, by the end, "paralyzed" (his word). Basic tracks were recorded, then endlessly overdubbed. In *Wings for Wheels*, the late Clarence Clemons says that he was still recording the tenor-sax solo for "Jungleland" as the band was downstairs, packing

the van to leave for the *Born to Run* tour. Composed entirely on piano, the album's songs—in the film, Patti Scialfa (Mrs. Springsteen) says that the songs "talk to each other"—became massive confections featuring instruments as diverse as violin, 12-string guitar, glockenspiel, and Fender Rhodes to Springsteen's own guitar, itself a hybrid of a Fender Esquire neck and Telecaster body. Some of the more exotic touches, such as samples of drag races intended to be layered into the title track, were ultimately rejected.

The only quibble is the sound, which has never been great. As with Springsteen's first two albums, recording for *Born to Run* began at 914 Sound Studios, in Blauvelt, New York, but production moved to the Record Plant, in Manhattan, after Landau came aboard. (He says in the film that 914 "had seen better days.") Still, tunes like "She's the One," in particular, have always sounded ill-defined and muddy, in part, I suspect, because of excessive overdubbing. In 1980, Columbia released the album as a half-speed-mastered LP that did nothing to improve the sound. The first CD transfers were abominable. A remastered gold CD in 1994 was just a money grab. The now defunct Classic Records made minor sonic improvements with their 1999 vinyl reissue, but genuine, audible improvements didn't appear until the *30th Anniversary Edition* (2005), and Bob Ludwig's remastering for Springsteen's *The Album Collection Vol. 1: 1973–1984* (2014).

But even with its sonic deficiencies, *Born to Run* retains the spirit of Springsteen at his hungriest; before the storm of fame broke over his head, he found home and family and finally his "Outlaw Pete" dote; his longings slaked and the E Street Band dwindling. But once there was a searcher, who believed:

*Outside the street's on fire
In a real death waltz
Between what's flesh and what's fantasy.* ■

Music critic Robert Baird (RBaird@enthusiastnetwork.com) welcomes a vibrant discourse on music and musicians.

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